UCRL-AR-119738 Rev. 1
Review Date: April 1997

Environmental Protection Department
Hazardous Waste Management Division

Building 883 Container Storage Area Contingency Plan

April 1996

Hazardous Waste Management Division

Lawrence Livermore National Laboratory
University of California Livermore, California 94551

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BUILDING 883 CONTAINER STORAGE AREA CONTINGENCY PLAN

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1. INTRODUCTION

1.1 Purpose

The Building 883 Container Storage Area is operated by the Hazardous Waste Management Division at Lawrence Livermore National Laboratory. The contingency plan for this facility was prepared to minimize negative impacts to human health and the environment from fires, explosions, and unplanned sudden or nonsudden releases from the building. The releases may be of hazardous, radioactive, or mixed waste constituents to the air, soil, ground water, or surface water, and they may be caused by earthquakes, power outages, or other emergencies.

This plan outlines the responsibilities and procedures to be followed in the event of an emergency at the facility, including those concerning transportation of wastes by Hazardous Waste Management personnel between the Hazardous Waste Management facilities. This plan has been developed in accordance with the requirements of 40 CFR 264 Subparts C and D; 22 CCR 66264.50-66264.56, 66265.50-66265.56; and the LLNL *Draft Emergency Plan.*

This contingency plan is designed to be used in conjunction with the current edition of the LLNL *Draft Emergency Plan,* which is a Laboratory-wide contingency plan that includes implementation procedures for responding to major accidents and disasters (including fires, explosions, hazardous, radioactive, or mixed material or waste spills, and other emergencies that are mitigated by the LLNL Fire Department). Both the *Draft Emergency Plan* and the *Emergency Plan Implementation Procedures* will be referred to collectively as the *Draft Emergency Plan* throughout this document.

Additional guidance for emergency roles, responsibilities, and actions to be taken are provided in the following documents:

- *Self-Help Plan*, Hazardous Waste Management Division, Fiscal Year 1996, LLNL.
- *Emergency Self-Help Guidelines, Site 300,* Nuclear Weapons Technology Directorate, July 1994, LLNL
- *Emergency Management Plan, Site 300,* Nuclear Weapons Technology Directorate, July 1994, LLNL

1.2 Scope of the Plan

This contingency plan was prepared specifically for the Building 883 Container Storage Area. It identifies personnel responsibilities, emergency equipment, and required actions necessary to mitigate accidents within this facility. It is intended to instruct and prepare Hazardous Waste Management Division personnel for potential emergencies.

The plan specifically defines the types of emergencies that must be mitigated by the LLNL Fire Department and those that may be remedied by Hazardous Waste Management Division personnel. This is accomplished by classifying the particular accident in accordance with the following four incident levels:

- Level 1 incident (no emergency): A Level 1 incident is a minor problem or incident not involving emergency response units external to the Hazardous Waste Management Division. Examples of this type of incident are a minor injury requiring first-aid treatment or a minor hazardous or toxic release. The Hazardous Waste Management Building 514 Facility Operations Supervisor or alternate may act as Incident Commander for this level of incident.

- Level 2 incident (minor emergency): A Level 2 incident may be a single fire, a moderate hazardous or toxic release, or an injury requiring medical treatment. The LLNL Fire Department Chief acts as Incident Commander for this level of incident. The LLNL Laboratory Emergency Duty Officer (LEDO) is informed of it, and the Site 300 Manager or his alternate is notified as quickly as possible.

- Level 3 incident (major emergency): A Level 3 incident includes emergencies such as multiple fires, an explosion, large hazardous or toxic material (waste) release, or a moderate earthquake. An incident at this level would require site-wide commitment and management of LLNL resources. The LLNL Emergency Duty Officer is in charge of the overall incident. The LLNL Fire Chief is the Incident Commander and is in charge of the incident scene. The Site 300 Manager or his alternate is notified as quickly as possible.

- Level 4 incident (disaster): A Level 4 incident includes emergencies such as a severe earthquake, major fire, major hazardous or toxic material (waste) release with off-site effects, or an explosion with major damage. These incidents cause extensive injuries, death, property damage, and/or security problems. The Crisis Manager is in charge of the overall incident. The Incident Commander (LLNL Fire Chief) is in charge of the incident scene. The facility-specific Self-Help Plans are activated in a Level 4 incident. These emergency response plans provide additional guidance in response to major emergencies. The Site 300 Manager or his alternate is notified as quickly as possible.

Hazardous Waste Management Division personnel may respond to a Level 1 incident without notifying the LLNL Fire Department, and this contingency plan need not be implemented for Level 1 incident mitigation.

Generally, telephone, radio announcements, or directions from the person in charge will be used to notify personnel of an evacuation.

In addition, for Levels 2,3, and 4 incidents the LLNL Laboratory Emergency Duty Officer and the Incident Commander (LLNL Fire Chief) will establish communication with the Site 300 Manager. This is done immediately after the inception of the emergency to determine the appropriate interfaces, lines of authority, and reporting criteria between Site 300 and the Livermore main site.

The LLNL Fire Department must be called whenever a Level 2, 3, or 4 incident occurs. Call ext 911.

1.3 Implementation of the Plan

The provisions of this contingency plan are intended to minimize hazards to human health and the environment. This plan is implemented whenever an incident requires intervention from the LLNL Fire Department; these incidents are classified as Levels 2, 3, or 4.

Hazardous Waste Management Division personnel must first decide if an incident exceeds a Level 1 classification. There are criteria to help make this determination. A Level 1 incident is exceeded and the Fire Department must be called if any one or more of the following conditions occurs:

- Fire,
- Release of materials or wastes with properties unfamiliar to Hazardous Waste Management Division personnel,
- Release of materials or wastes that cannot be identified,
- Release that cannot be cleaned up or contained and controlled by two individuals in 1 hour,
- Incident resulting in injuries requiring medical treatment,
- Incident requiring complete evacuation of a building or the facility,
- Any incident regarded by personnel as unsafe to manage in-house,
- Released hazardous or toxic material or waste migrating outside the Hazardous Waste Management Facility boundary.

Although this plan need not be implemented for Level 1 incidents, response procedures for them are included in this document to provide guidance for Hazardous Waste Management personnel (see Section 4.2.1).

1.4 Maintenance of the Plan

A current copy of this contingency plan is maintained at the Building 883 Container Storage Area, the Hazardous Waste Management Division Office, the LLNL Fire Department, the Health Services Department, and the Safeguards and Security Department; copies are submitted to all appropriate off-site police, fire, and emergency response agencies (see Section 5).

The plan will be amended, as necessary, to ensure that it is current and reflects actual facility response practices. It is reviewed by Hazardous Waste Management Division annually and is immediately amended whenever:

- The LLNL Resource Conservation and Recovery Act (RCRA) Part B permit application is revised or the issued permit is significantly modified;
- Applicable federal regulations are revised;
- The contingency plan fails in an emergency;
- The Building 883 Container Storage Area changes its design, construction, operation, maintenance or other circumstances in a way that increases the potential for fires, explosions, or releases of hazardous or toxic waste, or changes the response necessary in an emergency;
- The list of emergency coordinators changes;
- The list of emergency equipment changes.

2. FACILITY DESCRIPTION

This section of the contingency plan includes a basic description of the Building 883 Container Storage Area, a site plan, and a brief description of facility operation and treatment units.

2.1 Basic Description

EPA ID No.:
CA 2890090002

Site Operators:
Regents, University of California
U. S. Department of Energy

Mailing Address:
Lawrence Livermore National Laboratory
P.O. Box 808
Livermore, CA 94551

Facility Name:
Building 883 Container Storage Area

Division:
Hazardous Waste Management Division

Department:
Environmental Protection Department

Location:
LLNL, Alameda County and San Joaquin County
Corral Hollow Road (7 miles west of Tracy)
Tracy, CA 95376

Contact:
Milt Grissom, Site 300 Manager
(510) 423-1396

Address:
Lawrence Livermore National Laboratory, Site 300
University of California
P.O. Box 808 (L-871)
Livermore, CA 94551

Owner:
U.S. Department of Energy

Address:
Department of Energy,
Oakland Operations Office
1301 Clay Street, Suite 700N
Oakland, CA 94612-5208

Contact:
James T. Davis
Assistant Manager for Environmental Management and Support
Department of Energy, Oakland Operations Office
Oakland, CA 94612-5208
Ph.: (510) 637-1587

2.2 Site Plan

The location of the Building 883 Container Storage Area is shown in Figures 7-1 and 7.2. These figures also show the facility layout, location of emergency equipment, and evacuation routes.

2.3 Facility Operations

The Building 883 Container Storage Area is in the General Services Area of Site 300 near the southern boundary. The facility is a covered concrete pad with dimensions of approximately 49.5×35 ft^2. A concrete curb surrounds the slab to contain releases and run-on.

The Building 883 Container Storage Area is designed to manage hazardous, non-explosive waste streams generated by LLNL's research and support organizations. These waste streams include, but are not limited to, spent plating solutions, rinse waters, machine shop wastes, acids, caustics, photographic chemicals, solvents, oils, and miscellaneous laboratory solutions and chemicals. Specifically designated units in the facility are designed also to manage waste streams of contaminated materials and asbestos debris . Wastes handled in this facility are regulated under one or more of the following agencies: the U.S. Environmental Protection Agency (EPA), California State Department of Toxic Substances Control (DTSC), California Department of Health Services, and the U.S. Department of Energy (DOE).

Specific activities conducted in the Building 883 Container Storage Area involve lab packing, waste packaging, container storage, and preparation of hazardous and toxic waste for shipment to off-site permitted facilities. The hazardous waste management units within the Building 883 Container Storage Area are designed and operated to minimize exposure of workers and the environment to hazardous, toxic waste constituents. (See Part B permit application for details of operation and design.)

3. HAZARD PREVENTION

This section outlines various hazard prevention efforts. Specifically, the LLNL approaches for preventing hazardous run-on and run-off, releases to the atmosphere, and undue exposure to employees are discussed.

3.1 Run-On and Run-Off Control—Hazard Prevention

Although LLNL is not located in a flood zone, the Building 883 Container Storage Area contains run-on control structures to protect hazardous waste containers from storm water. The control structures include a roof, grading that slope away from the unit, and storm drains. The facility flooring is graded toward a sump and the unit is designed to provide secondary containment. Waste containers with free liquids will be stored in portable secondary containment units to provide additional control of potential releases. Accidental release within the Building 883 Container Storage Area is removed in a timely manner.

All captured liquids, including rain and rinse water, are sampled and analyzed unless the source of a release is readily traceable to a particular container. If the container's contents are known and are on record, waste sampling and analysis is not necessary.

3.2 Releases to the Atmosphere—Hazard Prevention

All employees handling hazardous wastes are required to conform to the guidelines expressed in the Hazardous Waste Management Facility Safety Procedures (FSPs) and Standard Operating Procedures (SOPs). Hazardous gases, mists, or vapors are minimized or prevented by following waste handling procedures and these actions:

- Limiting operations at the Building 883 Container Storage Area to storage in closed containers and keeping containers closed except when adding or removing waste;
- Inspecting waste containers on a routine basis for timely detection and mitigation of releases, leaks, or integrity problems ;
- Fitting some containers with venting devices (e.g., carbon adsorption filters);
- Segregating incompatible wastes;
- Selecting containers that are compatible with the waste.

In the event of an accidental release to the environment, release response would be implemented. If the incident is declared Level 3 or greater, the LLNL Atmospheric Release Advisory Capability (ARAC) system would be utilized. ARAC is activated for an air release greater than the CERCLA Reportable Quantity, or if an LLNL industrial hygienist determines that an on-site release has an effect off site.

ARAC is a system designed to estimate the effects and atmospheric dispersion of hazardous and toxic waste releases within the immediate area surrounding a release or within Northern California. The ARAC Central Facility is equipped to perform detailed atmospheric dispersion calculations, allowing an accurate tracing of hazardous and toxic waste dispersion. This system allows the various response teams to have information on any hazardous and toxic waste concentrations resulting from an accidental release.

Additional near-event dispersion calculations are available from the LLNL Hazards Control Industrial Hygiene Group.

3.3 Undue Exposure to Employees—Hazard Prevention

Personnel are protected from undue exposure to hazardous waste by administrative controls, written procedures, personal protective equipment, and engineered controls. Medical evaluations are conducted on a regular basis for the HWM personnel working within the Building 883 Container Storage Area.

3.3.1 Administrative Controls

Any new potentially hazardous operation must be thoroughly evaluated by the LLNL Hazards Control Department prior to commencement. Procedures for the safe handling of specific chemicals and groups of chemicals are described in Chapter 21 of the *LLNL Health and Safety Manual*.

Operations at the Building 883 Container Storage Area are conducted using approved written procedures. Each procedure contains:

- A description of an anticipated activity and its hazards and risks;
- The name of the individual responsible for ensuring compliance with the OSP or FSP;
- Instructions to be followed to implement the controls that will reduce the risks to an acceptable level;
- Information concerning any special conditions that may be present.

Each Hazardous Waste Management Division employee assigned to the Building 883 Container Storage Area to handle hazardous waste is required to read the safety procedures. The FSP planning and preparation process is described in the *LLNL Health and Safety Manual*, Chapter 2, "Work Planning and Safety Procedures." In addition, as part of HWM's Training Program, each HWM employee is a participant in the HWM Reading Program which requires personnel to read FSPs, contingency plans, and self-help plans.

In addition to the broad safety guidelines presented in the FSP, safety requirements specific to a hazardous waste operation are presented in Hazardous Waste Management Division OSPs and SOPs. Hazardous Waste Management Division personnel must be familiar with each procedure applicable to a given operation before performing the work.

Personnel handling waste must also complete specialized training in accordance with 29CFR1910.120, 22CCR-66264.16, and 22CCR-66265.16. The 24-hour HAZWOPER course and its 8-hour annual refresher course is mandatory. The On-the-Job Training (OJT) Program and other specialized training courses must be completed by Hazardous Waste Management Division Operations Technicians and Technologists.

All programs, facilities, and buildings are subject to audits and evaluations by Hazards Control personnel. Results of these audits are forwarded to the appropriate department so that any deficiencies can be corrected. Hazards Control personnel also audit the effectiveness of the ES&H teams and other Hazards Control services to ensure that they are providing the proper support to operating personnel. Records of these audits are maintained by Hazards Control.

3.3.2 Personal Protective Equipment

Safety glasses and solid-toe safety shoes must be worn at all times when working in waste management operational areas. Booties are worn over shoes for certain activities, such as decontamination. Coveralls or equivalent are required to be worn at all times by operators handling waste containers. Leather, acid-, base-, or solvent-resistant gloves are worn as appropriate for the waste handling activity. Face shields, goggles, or other facial and eye protection are required to be worn in accordance with the FSPs and OSPs when handling open containers of liquid waste.

Employees are issued respirators with filter cartridges, based on information provided in a specific procedure or under the direction of an Environmental, Safety, and Health (ES&H) Team industrial hygienist. A Level 1,2,3, or 4 PPE is assigned, depending on the type of activity being undertaken.

If specified PPE is not available at the facility, and no approved substitute is available, work is delayed until adequate equipment is obtained. For more details on PPE available at the facility, see Section 7.4.4. For information on personal protective equipment guidelines, See Appendix A.

3.3.3 Engineered Controls

Forklifts are used to move large loads on pallets or skids. Drum dollies are used to move individual drums. The paving around Building 883 was constructed to provide ease and safe access to forklifts and other equipment carrying waste containers to the storage and treatment units. This construction helps prevent hazards in loading and unloading operations and therefore lessens the exposure of personnel to potential hazardous and toxic waste releases.

4. RESPONSIBILITIES DURING AN EMERGENCY

This section presents the responsibilities of Hazardous Waste Management Division emergency response staff and support organizations, in addition to the LLNL Emergency Response Organization. Individuals designated in Table 4-1 may be selected as Emergency Coordinator during an emergency incident. For Level 1 incidents the Building 883 Container Storage Area Supervisor or designated alternate is the Emergency Coordinator, and for Levels 2, 3, and 4 incidents, a Fire Chief is the Emergency Coordinator.

Additional descriptions of Site 300 emergency response personnel, including roles and responsibilities are provided in the *Site 300 Emergency Management Plan,* published July 1994.

Table 4-1. Emergency Call List

Hazardous Waste Management Division*		Duty Fire Chiefs†			
Title	Facility Supervisor	Fire Chief (primary)	Assistant Fire Chief (alt. 1)	Assistant Fire Chief (alt. 2)	Assistant Fire Chief (alt. 3)
Name	Scott Kidd	John Sharry	John Loverin	Jerry Sandoval	Ralph Buntlin
Dial Page	37777-01228	37700-01800	37700-01802	37700-01804	37700-01803
Work Phone	(510) 422-1253	(510) 423-1800	(510) 423-1802	(510) 423-1804	(510) 423-1803
Work Address	7000 East Ave. Livermore, CA 94551	7000 East Ave. Livermore, CA 94551	7000 East Ave. Livermore, CA 94551	7000 East Ave. Livermore, CA 94551	7000 East Ave. Livermore, CA 94551
L-Code	L-620	L-388	L-388	L-388	L-388
Home Phone	(510) 757-1032	(510) 373-1926	(510) 447-6855	(510) 443-0797	(408) 475-3840
Home Address	216 Brookside Dr., Antioch, CA 94509	5116 Teresa Way Livermore, CA 94550	1865 DeVaca Way Livermore, CA 94550	5175 Irene Way Livermore, CA 94550	615 Burlingame Ave., Capitola, CA 95010
Note: For assistance during off-shift hours, contact Fire Department Dispatcher on ext 911.					

*Emergency Coordinator for Level 1 Incidents.

†Emergency Coordinator for Level 2, 3, or 4 Incidents.

Individuals presented in Table 4-2 are designated as Facility Coordinators to support the Emergency Coordinator with administrative and field interactions.

4.1 Emergency Coordinator

4.1.1 LLNL Incident Commander

The LLNL Incident Commander fulfills the responsibility of Emergency Coordinator pursuant to state and federal regulations. The Incident Commander coordinates all emergency responses.

Table 4-2. Site 300 Facility Coordinators

	Primary Coordinator	First Alternate	Second Alternate
Name	Milton L. Grissom Site 300 Manager	James E. Lane	W. Kent Haslam
Office	LLNL/Site 300, L-871 (510) 423-1396	LLNL/Site 300, L-871 (510) 432-5217	LLNL/Site 300, L-871 (510) 423-5234
Home	(510) 426-1438	(510) 443-0758	(209) 836-2293

Level 1 incidents are handled by the Hazardous Waste Management Division with the Building 883 Container Storage Area Operations Supervisor or alternate as the Incident Commander. He or she is responsible for assessing emergency conditions, safeguarding Building 883 Container Storage Area personnel, making the initial emergency classification, initiating on-site response activities, and requesting help from support organizations. He or she coordinates all emergency response measures and has the authority to commit resources needed to mitigate Level 1 incidents as described in this contingency plan. Response procedures for Level 1 incidents are included in this document to provide guidance for Hazardous Waste Management personnel. This contingency plan need not be implemented for Level 1 incident mitigation.

For Levels 2, 3, and 4 incidents, the Fire Department is contacted. For these emergencies, the first or senior Fire Department Officer dispatched to or present at the incident site becomes the Incident Commander until relieved by a Chief Officer. The Incident Commander is responsible for assessing the emergency conditions, making the initial emergency level classification, initiating on-site response activities, and requesting support from off-site organizations. The Incident Commander manages on-scene operations to safeguard life and promote safety; control rescue, fire, release, decontamination, and containment activities; and conserve and salvage property. He or she also directs the efforts of the Emergency Response Organization to identify released material and assess potential or actual health consequences. The Incident Commander coordinates all emergency response measures and has the authority to commit resources needed to implement this contingency plan and the LLNL *Draft Emergency Plan*.

Personnel qualified to act as Incident Commander are always on the premises. The LLNL Fire Department maintains a 24-hour staff and is available to assume the role of Incident Commander at all times, for all levels of incidents.

4.1.2 Site 300 Facility Coordinator

At the request of the Incident Commander, a Site 300 Facility Coordinator will assist in activating emergency response plans. The Facility Coordinator coordinates administrative and field interactions. The Site 300 Facility Coordinator is responsible for contacting the Container Storage Area's HWM Technician or alternate when this contingency plan is activated. Table 4-2 gives the names and telephone numbers for the Site 300 Facility Coordinators.

4.1.3 Site 300 Manager

The Site 300 Manager or alternate is to be informed of any Level 2, 3, or 4 incident. This is done as soon as the emergency is discovered, so that actions to determine the appropriate interfaces, lines of communication, and reporting criteria between Site 300 and the Livermore main site can be initiated. The Site 300 Manager will establish communications with the Incident Commander (LLNL Fire Chief) and the LLNL Laboratory Emergency Duty Officer as quickly as possible.

4.1.4 Emergency Management Team

At Site 300 an emergency management plan establishes the emergency preparedness organization that will maintain security, minimize property damage, protect the health and safety of LLNL employees and the public, and prevent or minimize degradation of the environment. The Site 300 Emergency Management Team, which is part of the Site 300 Satellite Operations Center, will be activated during an emergency. The names of additional Site 300 emergency response personnel, their responsibilities, and telephone numbers are provided in the July 1994 *Site 300 Emergency Management Plan.*

4.2 Hazardous Waste Management Division Emergency Contacts

Hazardous Waste Management Division personnel who are prepared to respond in an emergency include the Building 883 Container Storage Area Supervisor, Operations Technicians and Technologists, and the Waste Operations Section Leader. Other Hazardous Waste Management Division personnel with responsibilities that affect the emergency response capability include the Support Services Supervisor and the Facilities & Assessments Section Leader.

For Level 1 incidents, Hazardous Waste Management Division can request assistance from emergency support organizations, which include: the Hazards Control ES&H Team, the Environmental Operations Group Environmental Analyst, and the Wastewater Guidance and Monitoring Group.

The Hazardous Waste Management Division also provides equipment and personnel to support the Incident Commander (Fire Chief), when requested, for release containment and cleanup during Levels 2, 3, and 4 incidents occurring on site. The Hazardous Waste Management Division maintains a ready supply of emergency response equipment in a specially equipped release response trailer.

4.2.1 Hazardous Waste Management Division Building 883 Container Storage Area Supervisor or Alternate

The following are the responsibilities of the Hazardous Waste Management Division Facility Supervisor (or alternate) for all emergency incidents in the Building 883 Container Storage Area.

- For Level 1 incidents:
  - — Maintains own safety and that of all personnel in the area;
  - — Acts as the Incident Commander, as described in Section 4.1;
  - — Ensures that the Environmental Operations Group Environmental Analyst and the Health and Safety Technician have been notified;
  - — Ensures that all normal waste handling operations cease in areas within and bordering the release until cleanup procedures are

completed, to avoid contact of incompatible waste with released material;

— Directs the collection and containment of released wastes and the removal or isolation of incompatible waste containers;

— Ensures that all releases are internally reported by Hazardous Waste Management Division Operations Technicians/ Technologists;

— Provides for treatment, storage, or disposal of recovered hazardous or toxic waste, contaminated soil, or surface water, in accordance with all applicable regulations;

— Ensures that adequate decontamination areas and equipment are established for personnel;

— Ensures that all emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.

- For Levels 2, 3, and 4 incidents:

  — Evaluates the immediate scope of the incident;

  — Initiates evacuation of facility personnel, if necessary;

  — Notifies the LLNL Fire Department;

  — Takes appropriate action to safeguard Building 883 Container Storage Area personnel;

  — Ensures that the Environmental Operations Group Environmental Analyst and the Health and Safety Technician have been notified;

  — Directs area personnel in accordance with the FSP and contingency plan as temporary Incident Commander, until the Fire Department and the official Incident Commander arrive;

  — Ensures that all normal waste handling operations cease in areas within and bordering the release until cleanup procedures are completed, to avoid contact of incompatible waste with released material;

  — Assists the Incident Commander and provides appropriate direction to Building 883 Container Storage Area personnel who are lending support;

— Ensures personnel and equipment are properly decontaminated;

— Ensures that all Hazardous Waste Management Division emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.

- Preventative maintenance responsibility:

— Ensures that all emergency response equipment and spill kit contents are properly maintained, sufficiently stocked, and in good working order.

4.2.2 Hazardous Waste Management Division Operations Container Storage Area HWM Technician

The Building 883 Container Storage Area Technician or his alternate maintains records of wastes stored at Building 883 and provides this information to the Incident Commander and Site 300 facility coordinator as requested. The information in the waste records includes identification of wastes involved, quantities, and facility status. The Building 883 Container Storage Area Technician shall also develop and implement, in conjunction with the Environmental Protection Department, actions needed to meet environmental requirements related to the incident.

The following are the responsibilities of the Operations Technicians and Technologists during an emergency incident.

- For a Level 1 incident:

— Maintain own safety;

— Observe the two-person rule — never work alone;

— For release response, follow the Ten-Step Plan (described in Section 6.2.6); listen carefully to instructions from the Incident Commander (Building 883 Container Storage Area operations Supervisor or alternate);

— Immediately report any injuries, incidents, and unsafe conditions to the Incident Commander;

— Stop any Hazardous Waste Management Division release cleanup operation when there appears to be danger to personnel, property, or the environment, and notify the Incident Commander and Facility Supervisor for assistance;

— Ensure that Level 1 releases are internally reported.

- For Levels 2, 3, and 4 incidents:

  — Maintain own safety;

  — Notify Building 883 Container Storage Area Supervisor or alternate (in case of extremely hazardous, life threatening situation, immediately notify facility personnel);

  — For Levels 2, 3, or 4 releases, if safe, follow the first five steps of the Ten-Step Plan (described in Section 6.2.6) while waiting for the LLNL Fire Department to arrive;

  — Observe the two-person rule — never work alone;

  — Provide assistance to the Incident Commander (LLNL Fire Chief), as requested, for release cleanup;

  — Listen carefully to instructions from the Incident Commander and Building 883 Container Storage Area Operations Supervisor;

  — Ensure that release residue and contaminated disposable clothing and equipment are discarded appropriately;

  — Ensure that all incidents are properly documented in daily inspection logs.

4.2.3 Hazardous Waste Management Division Waste Operations Section Leader

The following are the responsibilities of the Waste Operations Section Leader during an emergency incident:

- Coordinates remediation efforts as directed by the Incident Commander or the Environmental Operations Group Environmental Analyst;

- Provides technical support to the Emergency Control Organization regarding Hazardous Waste Management facilities and operations;

- Ensures that any reportable release is properly documented and that the Environmental Protection Department management is notified.

4.2.4 Hazardous Waste Management Division Support Services Supervisor

The Hazardous Waste Management Division Support Services Supervisor is responsible for maintaining the operational readiness of the emergency equipment at the Building 883 Container Storage Area to ensure proper working order.

4.2.5 Hazardous Waste Management Division Facilities & Assessments Section Leader

The Hazardous Waste Management Division Facilities & Assessments Section Leader or designee is responsible for preparing, reviewing, and updating the contingency plan.

4.3 Support Organizations

4.3.1 Hazards Control ES&H Team

Members of the Hazards Control ES&H Team may be called in to advise and support the Hazardous Waste Management Division in mitigating Level 1 emergency incidents. This team consists of specialists in the following fields: industrial hygiene, industrial safety, health physics, environmental protection, explosives safety, fire protection engineering, and criticality safety.

The Incident Commander of Levels 2, 3, and 4 incidents can also call on the Hazards Control ES&H Team as provided above for professional advice and, in addition, can activate the Site 300 Satellite Operations Center, Hazard Control Satellite Operations Center, and the Emergency Management Center if additional support is needed. This organization is described in more detail in the LLNL *Draft Emergency Plan*.

4.3.1.1 Hazards Control ES&H Team Leader

The following are the responsibilities of the Hazards Control ES&H Team Leader or alternate at Site 300. For Level 1 incidents:

- Helps dispatch the appropriate Hazards Control Department representative to advise and support the Hazardous Waste Management Division in mitigating Level 1 emergency incidents (this includes, but is not limited to, an industrial hygienist for chemical hazards assessments and PPE advice, and a health physicist for assessment and advice regarding released toxic wastes).

For Levels 2, 3, or 4 incidents:

- Assembles the ES&H Team at the command post or at a specified assembly area;
- Relays the field status of the emergency response to the Incident Commander;
- Coordinates team member responses in their respective disciplines;
- Provides a unified assessment of field conditions and actual or potential health effects based on team member evaluation of the incident;

- Establishes proper level of PPE based on evaluations;
- Establishes levels of contamination;
- Advises the emergency response organization on appropriate protective measures based on field evaluations.

4.3.1.2 Environmental Operations Group Environmental Analyst

The Environmental Operations Group Environmental Analyst represents the Environmental Protection Department on the Hazards Control ES&H Team. This individual supports the Hazardous Waste Management Division. The Environmental Operations Group Environmental Analyst's responsibilities during an incident (Level s1 through 4) are:

- Responds to emergency incidents and determines the actual or potential environmental impacts;
- Directs and assists with the collection of samples in an area with a contaminated release, collects samples after cleanup to verify that cleanup is complete, and determines whether remediation work is necessary;
- Prepares an Environmental Protection Department Environmental Incident Report;
- Determines whether the release needs to be reported to regulatory agencies;
- Notifies LLNL management and/or the appropriate regulatory agencies of the incident as directed by the Operations and Regulatory Affairs Division Leader.

4.4 LLNL Fire Safety Division—Emergency Operations Group

The LLNL Fire Safety Division (Fire Department) is called for Levels 2, 3, and 4 incidents. The Fire Safety Division is composed of an Administrative Group and an Emergency Operations Group. The latter group acts as the first responder to Levels 2, 3, and 4 incidents and is responsible for invoking the incident-command organization.

The first fire officer to arrive at the scene assumes the Incident Commander role until relieved by a Chief Officer. The Incident Commander's specific responsibilities during a Level 2, 3, or 4 incident are as follows:

- Acts as Incident Commander as described in Section 4.1 for Levels 2, 3, and 4 incidents (and as described in the *Draft Emergency Plan)*.

- In concert with the Site 300 Manager or alternate and the LEDO, activates the LLNL Site 300 administrative paging system to notify personnel in selected areas or the entire Site 300 population, if necessary. Initiates evacuation of personnel, if appropriate.

- Notifies appropriate state or local agencies with designated response roles if their help is needed (enlists support from agencies that participate in the Mutual Aid Agreement. If necessary, ensures that the State Office of Emergency Services has been notified).

- Prevents the occurrence, recurrence, and spread of fire, explosion, and waste release by stopping all waste handling processes and operations in the area.

- Directs the collection and containment of released waste and the removal or isolation of incompatible waste containers.

- Directs monitoring activities for leaks, pressure buildups, gas generation, or ruptures in valves, pipes, or other equipment, whenever this is appropriate.

- Ensures that all recovered wastes or material, contaminated soil, or surface water are treated, stored, or disposed of in accordance with all applicable regulations (may delegate this responsibility to the Building 883 Container Storage Area Supervisor).

- Ensures personnel are properly decontaminated before being released from an incident.

- Ensures that all emergency equipment used to mitigate the incident is cleaned and fit for its intended use before operations are resumed.

- Ensures that all required notifications to outside agencies take place.

The LLNL emergency response organization is discussed in detail in the LLNL *Draft Emergency Plan*.

5. ARRANGEMENTS WITH LOCAL AUTHORITIES

LLNL has agreements with many off-site local authorities, including fire departments, medical facilities, and law enforcement agencies. These authorities will provide assistance in the event of emergencies that cannot be handled by LLNL internal emergency response organizations. These include Mutual Aid Agreements, Emergency Medical Services agreements, Law Enforcement Assistance Agreements, and Memoranda of Understanding.

The California State Office of Emergency Services is the lead agency responsible for the development and implementation of state emergency preparedness plans.

If there is an off-site release of hazardous or radioactive materials from the main site or Site 300, the state will assist Alameda and San Joaquin Counties and the City of Livermore.

Alameda and San Joaquin Counties have developed emergency response plans for hazardous materials as required by SARA, Tile III. Alameda County's plan also deals with the possible release of radioactive materials. The counties' emergency response organizations are the lead agencies in situations involving off-site releases of hazardous and radioactive materials. They are responsible for coordinating state, county, and city government responses to these situations

Copies of written arrangements with local authorities are located in the following documents:

- *Draft Emergency Plan*, Appendix D, "Agreements, Emergency Preparedness and Response Program," 1993.

- *RCRA Part B Permit Application,* Appendix I, "Building 883 Hazardous Waste Container Storage Area Site 300," 1994.

5.1 Fire Protection

The LLNL Fire Department participates in the Twin Valley Mutual Aid agreement with local off-site fire departments . (A list of the primary local fire department participants is presented in Table 5-1.) The Twin Valley agencies comprise the east zone of Alameda County; the remainder of the county is divided into the north and south zones. The LLNL Fire Department is the coordinating department for mutual aid in the Twin Valley as well as Alameda County as a whole. The LLNL Fire Dispatcher, backed up by Alameda County Fire Dispatcher, is responsible for dispatching the various fire units and ascertaining that all jurisdictions have some fire protection, as allocated through pre-determined response assignments. In the event that a fire cannot be mitigated with the facilities of any one of the Twin Valley agreement participants, the other contracting participants shall, upon request, furnish aid (personnel and equipment) to protect life and property from fire.

Each party reserves the right to determine the extent of assistance it will furnish, including the right to refuse to provide assistance when the agency's own fire protection needs are such that equipment or personnel may not be safely released for service elsewhere. The Fire Chief of the City of Livermore is designated as administrator of the agreement. The agreement will remain in full force and effect without renewing, except that any party may withdraw by giving 30 days written notice.

LLNL is also signatory to automatic aid agreements with the City of Livermore Fire Department and the Alameda County Fire Department, which provides automatic response on a first-alarm basis.

Table 5-1. Participants in the Twin Valley Mutual Aid Agreement

California Department of Forestry Castle Rock and Sunol Stations Contact Morgan Hill Fire Dispatch 15670 Monterey Street Morgan Hill, CA 95037 (408) 779-2121	City of Livermore Fire Department 4550 East Avenue Livermore, CA 94550 (510) 373-5450
City of Pleasanton Fire Department 4444 Railroad Avenue Pleasanton, CA 94566 (510) 484-8114	Alameda County Fire Department 835 East 14th Street San Leandro, CA 94577 (510) 618-3490
Dougherty Regional Fire Authority 9399 Fircrest Lane San Ramon, CA 94583 (510) 829-2333	San Ramon Valley Fire Protection District 1500 Bollinger Canyon Road San Ramon, CA 94583 (510) 838-6640
Camp Parks Fire Department 636 Fifth Street Dublin, CA 94568 (510) 803-5612	Veterans Administration Fire Department 4951 Arroyo Road Livermore, CA 94550 (510) 447-2560, Extension 36188

Copies of all agreements with off-site fire agencies are maintained by LLNL's Fire Department.

5.1.1 Additional Fire Protection Arrangements

Fire departments in San Joaquin County that may provide local fire protection to Site 300 are:

- Tracy Rural Fire Department
  22484 South 7th St.
  Tracy, CA 95376
  (209) 835-1883

- Tracy Fire Department
  835 Central Ave.
  Tracy, CA 95376
  (209) 835-2525

5.2 Emergency Medical Service

5.2.1 On-Site Medical Service

The LLNL Fire Department is an emergency medical service (EMS) first responder. The LLNL Health Services Department at the Livermore main site has hospital facilities and a decontamination unit at Building 663, where an individual contaminated with hazardous substances may be taken to undergo decontamination and emergency medical treatment.

LLNL is signatory to the Alameda County EMS system for Central and East County. (Participants in this EMS are presented in Table 5-2). The EMS is a dynamic mix of private and public health care providers working together to improve the quality of patient care in the pre-hospital and hospital settings. Emergency response personnel are regulated by state and county EMS policies and procedures. Pre-hospital care providers include:

- Dispatchers
- Police personnel
- Fire personnel
- Ambulance personnel
- Mobile intensive care nurses
- Base hospital physicians.

Injured personnel needing emergency care may also be brought to the Tracy Community Memorial Hospital in Tracy (see Table 5-3). At Site 300 there is a medical facility in Building 870 that is staffed during working hours. This medical facility can respond, on a limited basis, to emergencies. Its emergency phone number is 3-5250.

5.2.2 Off-Site Medical Service

The hospitals listed in Table 5-3 may also provide emergency medical service to Site 300 personnel, and so may the following: Dameron Hospital in Stockton - (209) 944-5550; San Joaquin County Hospital in French Camp - (209) 468 6000; and St. Joseph's Hospital in Stockton - (209) 467 6400.

LLNL works closely with medical personnel of Alameda County via its countywide EMS plan. Alameda County has nine EMS zones, each with a base hospital, and the base hospital for Site 300 is ValleyCare Medical Center.

The EMS plan is activated when the medical service needs resulting from an incident threaten to overwhelm the resources of a single EMS zone. In case of a multi-casualty incident, ALCO-CMED (County Medical Emergency Dispatch/San Leandro) alerts all hospitals in the plan, while the base hospital in the affected EMS zone acts as the coordinating body. ALCO-CMED is linked by radio with LLNL's Fire Safety Division and Health Services. ALCO will send ambulances to the disaster site, maintain the emergency rooms (ERs), and direct ambulances to hospital ERs. Air transportation via helicopter may be used if the overall time for transport to a hospital is reduced by at least 20 minutes over that of ground transportation. Other hospitals cancel routine services to prepare to receive patients.

Table 5-2. Receiving Hospitals in the Alameda County Emergency Medical Service*

Hospital	Capabilities
Alameda Hospital 2070 Clinton Avenue Alameda, CA 94501 522-3700	Ob-Gyn Basic EMT/FRD Base
Alta Bates Hospital 3001 Colby Street Berkeley, CA 94705 540-0337	Basic Ob-Gyn IC Nursery Burn Unit EMT/FRD Base 5150 Designation
Children's Hospital 747 – 52nd Street Oakland, CA 94609 428-3000	Pediatric Cases only Trauma Center, IC Nursery Cardiovascular Surgery Pediatric ICU
Eden Hospital 20103 Lake Chabot Road Castro Valley, CA 94546 537-1234	Basic Trauma Center 5150 Designation Ob-Gyn EMT/FRD Base EMS LS (Landing) Helipad
Highland General Hospital 1411 E. 31st Street Oakland, CA 94602 437-4557	Trauma Center Ob-Gyn 5150 Designation Basic ICN ALS Base
Kaiser Oakland Hospital 280 W. MacArthur Blvd. Oakland, CA 94611 596-1000	Ob-Gyn IC Nursery Pediatric ICU NICU (Neonatal) Basic
Kaiser Hayward Hospital 27400 Hesperian Blvd. Hayward, CA 94545 784-5000	Ob-Gyn Basic Pediatric ICU ALS Base
John Muir Medical Center 1601 Ygnacio Valley Road Walnut Creek, CA 94598 930-3000	Trauma Center Helipad Basic ALS Base
Oakland Naval Hospital 8750 Mountain Blvd. Oakland, CA 94627 633-5000	Ob-Gyn Stand-by

Table 5-2. (Continued)

Hospital	Capabilities
San Leandro Hospital 13855 East 14th Street San Leandro, CA 94578 357-6500	Basic
San Ramon Regional Medical Center 6001 Norris Canyon Road San Ramon, CA 94583 275-9200	Basic Ob-Gyn
St. Rose Hospital 27200 Calaroga Avenue Hayward, CA 94545 782-6200	Helipad Basic Ob-Gyn EMT/FRD Base
Summit Hospital Hawthorne and Webster Sts. Oakland, CA 94609 655-4000	Basic Ob-Gyn Cardiovascular Surgery Orthopedic
ValleyCare Medical Center 5555 West Las Positas Boulevard Pleasanton, CA 94588 734-3350	Basic OB/Gyn 5150 Designation ALS Base EMT/FRD Base EMS LS
Washington Hospital 2000 Mowry Avenue Fremont, CA 94538 797-1111	Basic Cardiovascular Surgery Ob-Gyn 5150 Designation Helipad

*The Alameda County Emergency Medical Service district office address is:

The Alameda County Health Care Services Agency
Emergency Medical Service District
55 Santa Clara Avenue, Suite 200
Oakland, CA 94610
268-7355 (not open Tuesday mornings)

Table 5-3. Receiving Hospital in the San Joaquin County Area

Hospital	Capabilities
Tracy Community Memorial Hospital 1420 Tracy Boulevard Tracy, CA 95376 (209) 835-1500	Emergency Center ICU Cardiovascular Surgery
Memorial Hospital 1700 Coffee Road Modesto, CA 95355 (209) 526-4500	Helipad Fully Acute Hospital

The EMS District is a division of the Alameda County Health Care Services Agency, Public Health Services Department. The EMS District coordinates EMS activities in Alameda County. The Board of Supervisors (five members) makes general policy decisions affecting the EMS District. The County Health Officer is designated the EMS Medical Director by the Board of Supervisors. The County Health Officer delegates this responsibility to the EMS District. Medical control of the pre-hospital medical care within the system is the responsibility of the EMS Medical Director.

LLNL is also signatory to a Memorandum of Agreement with ValleyCare Medical Center in Pleasanton and Eden Hospital (trauma center) in Castro Valley for treatment of radiologically contaminated personnel. Air transport of patients is provided by Alameda County under the Alameda County Medical Alert Plan. The decision for air transport is normally made by LLNL Health Services Department personnel, but may be made by the LLNL Fire Department, if warranted. Notification is coordinated by the LLNL dispatcher.

Copies of EMS agreements are maintained by the LLNL Fire Department.

Ambulance Services:

Alameda County Emergency Medical Services
55 Santa Clara Avenue, Suite 200
Oakland, CA 94610
(510) 268-7355

Mobile Life Support (c/o Don Jones)
531 West Beverly Place
Tracy, CA 95376
(209) 835-1500

Air-Ambulance Services:

Mediflight
Modesto International Airport
1700 Coffee Road
Modesto, CA 95353
Attention: Frank Erdman
(209) 524-7848

Cal Star
20876 Corsair Boulevard, Suite B
Hayward, CA 94545
Attention: Joe Cook, President
(510) 887-3063
(800) 252-5050 (Dispatch Center)

5.3 Law Enforcement

5.3.1 On-Site Law Enforcement

The LLNL Safeguards and Security Department has established agreements for nonreciprocal police assistance to LLNL through the Law Enforcement Mutual Aid Agreement in Region 2. Agencies participating in this region are listed in Table 5-4.

The Alameda County Sheriff serves as coordinator and has authority to implement this agreement whenever assistance is requested of the Region 2 participants.

LLNL will seek assistance from the Law Enforcement Mutual Aid participants of Region 2 for traffic and crowd control, whenever large-scale evacuations or public demonstrations take place. Requests for assistance from outside law agencies will be made by the LLNL Safeguards and Security Department, as appropriate.

Alameda and San Joaquin Counties can provide additional police to secure the site, alert nearby residents, and assist in evacuation. The counties can also request assistance from various cities' emergency teams, such as the Escalon City Police Department - (209) 838-7093; Ripon City Police Department - (209) 599-3132; and Lathrop City Police Department - (209) 858-5551. The Protective Planning and Assurance Office of the LLNL Safeguards and Security Department maintains all agreements with off-site law enforcement agencies.

Table 5-4. Law Enforcement Mutual Aid Agreements

Alameda County Courthouse 1225 Fallon St., Room 103 Oakland, CA 94612-4381	California Highway Patrol Golden Gate Division 1551 Benicia Road Vallejo, CA 94591
City of Livermore Police Department 1050 South Livermore Avenue Livermore, CA 94550	San Joaquin County Sheriff Department 7000 S. Michael Canlis Blvd. French Camp, CA 95231
Sandia National Laboratories, Livermore Physical Security Organization 8531, Building 912, Room 091 East Avenue Livermore, CA 94550	Tracy Police Department 400 East 110th St. Tracy, CA 953766 (209) 835-4550
Alameda County Sheriff's Department Office of Emergency Services 2000 150th Avenue San Leandro, CA 94578 (510) 6667-7740	Federal Bureau of Investigation San Francisco Office 450 Golden Gate Avenue P.O. Box 36015 San Francisco, CA 94102

5.4 Miscellaneous Agreements

LLNL also participates in numerous other mutual aid agreements. These include: the State of California Office of Emergency Services, City of Livermore (Automatic Aid Agreement), City of Tracy, University of California and State of California (Master Mutual Aid Agreement).

Copies of some of the Mutual Aid Agreements are provided in Appendix D, *Draft Emergency Plan*, 1993 and Appendix I, *Part B Permit Application*, "Building 883 Hazardous Waste Container Storage Area, Site 300."

5.5 Distribution of Contingency Plans and Emergency Response Information

Contingency plans from each of the Hazardous Waste Management facilities are sent to LLNL's Fire Department, Health Services Department, and Safeguards and Security Department. The Site 300 Manager also keeps a copy of this contingency plan. These departments coordinate all emergency response activities with off-site emergency responders and, therefore, will transmit all pertinent information to affiliated off-site agencies, as warranted by the emergency situation.

Pertinent off-site agencies are sent copies of Hazardous Waste Management facility contingency plans. These agencies include all participants in the Twin Valley Mutual Aid Agreement, the Alameda County EMS District Office, ValleyCare Medical Center, the Alameda County Sheriff's Office, and the City of Livermore Police Department.

The LLNL Fire Department is familiar with the layout of all Hazardous Waste Management facilities and, therefore, with the locations where Hazardous Waste Management Division operational personnel will be working. Both the LLNL Fire Department and the LLNL Health Services Department are familiar with the types of injuries or illnesses that could result from fires, explosions, or releases from the Hazardous Waste Management facilities.

The LLNL Fire Department and the Safeguards and Security Department are familiar with all entrances to and with all possible evacuation routes from the Hazardous Waste Management facilities and the LLNL site.

Evacuation routes from the Hazardous Waste Management facilities are presented in Section 8 of each facility contingency plan. Evacuation from the overall LLNL site is presented as Appendix VIII-E of the Part B permit application and in LLNL's *Draft Emergency Plan.*

6. EMERGENCY CONTROL PROCEDURES

Response to an emergency at the Building 883 Container Storage Area is designed to be at a level appropriate to the incident. The transition from one level of

emergency to another must be automatic and keyed to well-defined criteria. Emergency action levels are defined by type of event and the potential hazard to on-site personnel and off-site individuals The LLNL and DOE emergency classification schemes are defined in Section 1.2. The Hazardous Waste Management Division may respond to a Level 1 incident; the Fire Department will respond to Levels 2, 3, and 4 incidents. To determine if a Level 1 incident has been exceeded, refer to the criteria in Section 1.3.

6.1 LLNL Site-Wide Emergencies

LLNL maintains a Self-Help Program. Each department/division is required to prepare and keep its own self-help plan, designed to collect and safeguard personnel and visitors during site-wide emergencies. Whenever a major emergency event occurs and LLNL's emergency response organization is fully committed, the self-help plans are enacted.

LLNL Site 300 has many designated assembly points where personnel are instructed to meet whenever evacuations are necessary. These locations are controlled by Assembly Point Leaders who handle the local emergencies while awaiting assistance from the emergency response organization. The highest ranking individual present at the assembly point is appointed leader.

6.2 Emergency Situations

For serious or life-threatening emergencies at Site 300, call "911" for emergency assistance. The Site 300 Satellite Operations Center (SOC) should be advised of life-threatening injuries as soon as practicable. If the situation does not warrant immediate attention, minor injuries can be treated at the scene while assessment of the situation continues before calling the Site 300 SOC.

- Telephone calls from Assembly Point Leaders or program and support group representatives concerning assembly point status reports may be made to the Site 300 SOC on ext. 3-5600.

- Reports by Site 300 radio will be made on the Self-Help Radio Network connecting the assembly points. Self-Help radio operators should radio in to the Site 300 SOC as soon as possible. Emergency Channel "B" will be used by the emergency response organizations, and the SOC can also be accessed on it.

- The radio call sign for the Site 300 SOC is "SOC Control."

- The Radio Amateur Communications Emergency System (RACES) at Site 300 will be activated by the Deputy Emergency Manager as an adjunct to the other radio networks. Operation of this system is dependent on the presence of qualified ham radio operators.

- Couriers will be used when all telephone and radio communications are inoperative. Verbal reports by couriers are often incomplete and should be supplemented whenever possible by written information in the form of an assembly point status report.

The following sections describe the procedures for each of several emergency situations.

6.2.1 Fire or Explosion

If a fire or explosion occurs, personnel should

- Dial ext 911 and give the Emergency Dispatcher the following information:
  - — Name;
  - — Location of the incident (building, room, area, cross streets, or any other information that might help the emergency response personnel quickly locate the scene);
  - — Nature of the incident (fire, electrical, chemical, etc.) ;
  - — Additional information that might affect the response personnel (severity of the fire, materials at risk in the immediate area).
- Remain on the phone to verify the information given to the Emergency Dispatcher and receive instructions.
- Notify supervisor.
- Isolate the emergency area.
- Give emergency aid to the injured, if safe to do so.
- After performing the above steps, if a fire can be controlled with a fire extinguisher, an employee trained in using fire extinguishers may attempt to control the fire (see Section 7.3.1).

The Incident Commander (from the LLNL Fire Department) is responsible for controlling the incident as described in Section 4.4.

6.2.2 Earthquakes

The following steps should be observed by individuals during an earthquake:

- Remain calm, think through the consequences of any actions taken, and try to calm and reassure others.

- Indoors, watch for falling light fixtures and other objects; if in danger, get under a table or desk in a corner away from the windows, or stand in a strong doorway; encourage others to do the same.

- Do not use the telephone except for an emergency, to prevent the phone system from being overloaded; wait at least 30 minutes before calling home or making non-emergency telephone calls.

- Usually it is best not to run outside; if leaving the building is necessary, choose the exit as carefully as possible.

- Avoid touching downed power lines or objects that are touching downed lines.

- Outside, avoid high buildings, walls, power poles, and other objects that could fall; do not run through streets; if possible, move to an open area away from all hazards.

- Follow instructions that may be given over the emergency public address system; if told to evacuate the building, go to the designated assembly point for the area unless directed otherwise (see Section 8).

After a major earthquake, determine if fellow workers are injured. If instructed to evacuate, go to the emergency assembly point, if safe to do so. There, follow the instructions of the Assembly Point Leader. He or she will organize a sweep team to accomplish the tasks listed below. If evacuation is not ordered, find a safe place and stay there until the emergency subsides.

Then, if necessary, assist the Building 883 Container Storage Area Supervisor or alternate and/or the Facility Coordinator in accomplishing the following tasks:

- Moving seriously injured persons, but only if they are in immediate danger of further injury.

- Calling the Emergency Dispatcher (ext 911) for emergency assistance;

- Checking for fires or fire hazards, particularly in hazardous and toxic waste storage areas.

- Checking utility lines and equipment for damage and shutting off electrical power to equipment (do not use matches, lighters, or open-flame appliances or operate electrical appliances or switches until sure that no flammable vapors are present).

- Inspecting the facility to verify that there has been no damage to tanks, piping systems, containers, or storage areas (the area should be cordoned off to control access).

- Stopping the source of any releases and providing containment of any released material.

- Assisting in the cleanup of any released chemicals or other potentially harmful materials as directed in Section 6.2.6.

- Reporting any emergencies to the Emergency Dispatcher.

6.2.3 Power Outages

Routine waste management operations of this facility are conducted during daylight hours (8:00 a.m. to 5:00 p.m.), Monday through Friday, except holidays. The Building 883 Container Storage Area is an open-air facility without lighting. A power outage at this facility would have little or no effect on operations.

A gas-powered portable generator and three floodlights are maintained in the Hazardous Waste Management Division's release response trailer which is located by the Building 883 Container Storage Area. This equipment is available for use during nonroutine waste management operations or emergency situations. The portable generator is serviced and tested once a month regardless of use.

Also at Site 300, portable electric generators and emergency lighting are available on a 24-hour basis by calling the Site's Maintenance Machine Shop in Building 875 at 3-5247.

One other additional portable generator is maintained with additional floodlights and construction light strings in the Support Services Group equipment yard located north of Building 419. The generator is also tested and serviced once a month regardless of use. The generators, floodlights, and construction string lights are available as needed.

Employees also have access to flashlights to monitor the facility during a power outage. If a power outage were to occur at the same time as an indoor waste release, a portable generator with accompanying flood lights is available for cleanup operations. This equipment is also available for a release detected at night.

The lack of back-up power does not pose a threat, since none of the operations at the Building 883 Container Storage Area require power to prevent a release of hazardous or toxic waste substances.

6.2.4 Container Failure

If a container holding hazardous or toxic wastes or materials leaks or releases its contents to the environment and if there is no immediate threat to personnel

safety, Hazardous Waste Management Division personnel will take immediate action to contain the release. They will follow the procedures outlined in this section as well as in Section 6.2.6.

6.2.4.1 Procedures to Stop and Contain Waste

When visual monitoring indicates that a leak or release has occurred, a series of steps must be taken to evaluate the situation. These steps are structured to provide the appropriate actions to (1) minimize the environmental impact and (2) determine a course of action to remedy the problem.

The following actions are required when a leak is detected:

- Cease waste handling operations;
- Isolate or remove any containers of incompatible wastes from release vicinity if contact is possible;
- Initiate release response in accordance with Section 6.2.6;
- Use Drum Repair Kit for temporary drum repair, in accordance with Section 6.2.6.1 (Step 2);
- Place the damaged container into a compatible overpack drum or other suitable container when conditions are safe.

6.2.4.2 Removal of Waste

Liquid within secondary containment is removed in a timely manner. Large releases are pumped into appropriate containers and small releases are treated with absorbent material and placed into appropriate containers. All liquids contained in the basins, including rain and rinse water, are collected, then sampled and analyzed. These accumulated liquids are transported to the Area 514 Facility or shipped to another off-site permitted treatment, storage, and disposal facility.

6.2.5 Equipment Failure

Procedures have been developed to manage situations in which equipment failure may cause a release of hazardous or toxic waste or materials. These pertain mostly to forklifts and cranes that handle containerized loads.

6.2.5.1 Action Required to Stop and Contain Waste

When visual monitoring indicates that a leak or release has occurred, a series of steps must be taken to evaluate the situation. These steps are structured to provide the appropriate actions to (1) minimize the environmental, safety, and health impacts and (2) determine a course of action to remedy the problem. The following actions are required after a leak caused by equipment failure is detected:

- Cease operation of the equipment;
- Isolate or remove any containers of incompatible wastes from release vicinity if contact is possible;
- Initiate release response in accordance with Section 6.2.6;
- Remove the waste from the system and/or secondary containment as described in Section 6.2.4.2;
- Locate the leak;
- Decontaminate the equipment;
- Repair or scrap equipment (initiate closure proceedings for scrapped permitted equipment).

6.2.5.2 Repairs

Equipment may be returned to service after the waste is removed and repairs, if necessary, are completed.

6.2.6 Release Response for Hazardous Materials and Waste

Releases from Level 1 incidents are called “small incidents.” These releases may be cleaned up by Hazardous Waste Management Division personnel without notifying the LLNL Fire Department. Response procedures for Level 1 incidents are included in this document to provide guidance for Hazardous Waste Management personnel. This contingency plan need not be implemented for Level 1 incident mitigation. Releases from Levels 2, 3, and 4 incidents are called “large incidents” and must be mitigated by the LLNL Fire Department. To determine if a release is considered a small incident, the following criteria must be met:

1. The identity of the released material or waste is known;
2. The released material or waste is commonly handled by the Hazardous Waste Management Division and the personnel are familiar with its hazards;
3. The release can be cleaned up or contained and controlled by two people in less than one hour.

The Building 883 Container Storage Area Supervisor or alternate will make this determination. He or she may consult with the Hazards Control ES&H Team for help with this assessment.

If personnel have any doubt about their ability to clean up a release properly and safely, the LLNL Fire Department should be notified immediately.

6.2.6.1 Ten-Step Release Response Guidance Plan

The ten-step approach from the Environmental Policy section of the Environmental Protection Department's *Environmental Protection Handbook* is followed to manage leaks and releases of hazardous or toxic wastes. This approach is illustrated below:

Ten-Step Approach to Managing Leaks and Spills of Hazardous Materials and Wastes

Identify the spill

1

If safe, shut off the source

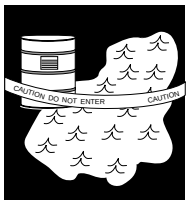
2

Eliminate ignition sources

3

Contact your supervisor

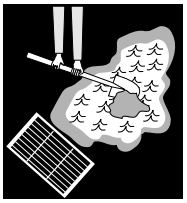
4



Cordon off the area

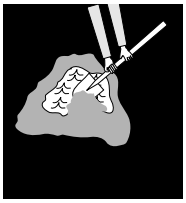
5

If the release is manageable, continue with Steps 6–10. If not, call the LLNL Fire Department on ext 911; if any of the above steps are not considered safe, then immediately call the Fire Department.



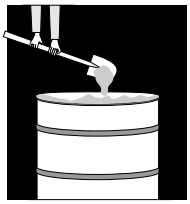
Contain

6



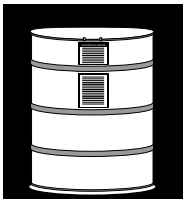
Absorb and neutralize

7



Clean up

8



Dispose of as hazardous waste

9

Decontaminate and restock spill equipment

10

Note: Depending on the type of release, proper decontamination procedures and equipment requirements need to be established. A decontamination zone will help ensure that wastes from this activity is properly collected. If direct contact with a hazardous or toxic waste or chemical arises from any release-response actions, personnel should do the following:

— Use eyewash or shower;

— Remove contaminated clothing;

— Use soap and water to scrub off contaminant.

More detailed procedures for performing each step are given below.

1. Identify the release

    - Stand upwind of the released substance.

    - Identify wastes by information on the container labels, e.g., hazardous waste has a red/white label.

    - Identify wastes also by information on the Waste Disposal Requisition form.

    - Do not remain in the area if an immediate personnel hazard exists.

    - If the label cannot be read and the material cannot be positively identified, call the LLNL Site 300 Fire Department on ext 911 for assistance. Cordon off the area affected by the release until the Fire Department arrives.

2. Shut off the source of release

    If waste type is known and no major hazards exist, do the following:

    - Wear PPE sufficient to protect against the material or waste released (see Appendix A for guidelines or contact the Hazards Control ES&H Team).

    - Shut off the source of the release immediately or place the container in an upright position. Each Emergency Spill Kit contains a Drum Repair Kit; use the repair kit to temporarily plug holes or small tears in the container until the waste can be overpacked into a larger container. Prompt action can prevent a small release from becoming a large one.

3. Eliminate ignition sources

    All sources of spark or flame in the area should be extinguished. In addition, all containers of waste incompatible with released materials should be moved away from the vicinity of the release if contact is possible. Ignition sources are:

    - Wiring and breakers.

    - Exhaust systems.

    - Generators and pumps.

4. Contact your supervisor.

   Report the release to the supervisor as soon as possible. Depending on the magnitude of the release, the following people should be notified:

   - Supervisor – All releases.
   - Health and Safety Technician – All releases.
   - Environmental Analyst – All releases.
   - LLNL Fire Department – Any release that cannot be safely cleaned up by Hazardous Waste Management Division.

5. Cordon off the area (this step provides instructions for the Building 883 Container Storage Area Supervisor or alternate)

   - If the release is manageable, evacuate all persons from the area that are not involved in cleanup operations. Make sure no unauthorized personnel enter the release area. At this point call the Hazards Control ES&H Team if advice is needed regarding the type of PPE or containment equipment to use.
   - Have the release area cordoned off (put up a barricade with tape or rope).
   - If the release is too large for Hazardous Waste Management Division personnel to manage, call the LLNL Site 300 Fire Department (ext 911). Evacuate all persons from the release area. Prevent all entry to the release area until the LLNL Fire Department arrives.

6. Contain the release

   - Wear personal protective equipment adequate to protect against exposure or contact with the material or waste released. Protective clothing can be found in the nearest emergency spill kits. Additional personal protective equipment can be found in the nearest PPE locker. See Figures 7-1 and 7-2 in Section 7 for spill kit and PPE locker locations. Appendix A provides general guidelines for choosing PPE. For further assistance, contact the Hazards Control ES&H Team.
   - Use the appropriate equipment from the nearest emergency spill kit to contain and absorb the material or waste released (see Appendix B). Contact the Hazards Control ES&H Team for additional assistance.

Containment Technique for All Liquid Waste Releases

- If the release can safely be cleaned up by Hazardous Waste Management Division personnel, efforts should be made to keep the release from spreading. Containment is possible by damming, diking, or blocking the path of the release. Absorbent material can be spread immediately around the release area.

- Choose an absorbent material that is compatible with the material or waste released.

- Use absorbent socks (or "pigs") or loose absorbent to dam up waste, beginning at its point of most rapid flow and on sides where release flows toward drains or other conduits to the environment.

Techniques to Protect Drains

- Use absorbent socks, or loose absorbent material to encircle the entire drain to prevent the waste from entering.

- Add a second outside ring if absorbent material appears saturated;.

- Protect floor drains, storm drains, and any other conduits to the environment, by surrounding them with an absorbent dike.

7. Absorb and/or neutralize

    - Cover the contained release with loose, compatible absorbent material, working from the perimeter inward toward the center.

    - If neutralization of a corrosive release is desired, then an appropriate neutralizing absorbent may be substituted.

    - Small releases may be absorbed solely with an absorbent sock. See Appendix C for more details regarding procedures for absorbing and/or neutralizing releases of acid, aqueous, caustic, flammable liquid, polychlorinated biphenyl (PCB), or oxidizer materials or wastes.

8. Clean up

    - Use appropriate waste disposal containers.

    - Once the release has been contained and absorbed, properly clean up the spent absorbent and cleanup materials. Used absorbent, clothing, and cleanup supplies that cannot be properly decontaminated must be disposed of as hazardous or toxic waste, as applicable. Drums or lard cans may be used to contain spent

absorbent. Appropriate waste labels must be used to identify waste containers. Release response supplies that have been used in the release response must be replaced before Building 883 Container Storage Area operations resume.

- Swipe samples of the release area will be taken and analyzed to verify the adequacy of cleaning effort, based on regulatory thresholds for hazardous waste classification.

9. Disposal of hazardous waste

    - Use existing Hazardous Waste Management Division procedures.

    - Evaluate all materials used in the release response to determine whether they must be managed as hazardous or toxic waste. All regulated waste must be handled according to Hazardous Waste Management Division procedures.

    - Complete the appropriate waste label and attach to the container.

    - Initiate the Waste Disposal Requisition process.

10. Decontaminate and restock

    - Establish a decontamination zone for personnel, if warranted.

    - Remember: Handle rinse water from decontamination operations as a hazardous or toxic waste, pending analysis (see 6.3.1).

    - Before resuming operations, restock supplies and decontaminate equipment and personal protective equipment, if they are intended for future use. If disposable, discard in accordance with all applicable regulations

6.3 Decontamination

6.3.1 Hazardous Waste Management Division Decontamination Activities for a Small (Level 1) Incident

All equipment, protective clothing, and other materials used in release response are evaluated to determine whether they are contaminated with hazardous or toxic wastes. All nondisposable items are decontaminated. Any rinse water generated from decontamination operations is managed as hazardous or toxic waste, pending analysis. If test results indicate the rinse water is a hazardous or toxic waste, then it is either treated at the Area 514 Waste Water Treatment Tank Farm Unit or containerized for shipment to a permitted treatment and disposal facility. These accumulated liquids are discharged to the sanitary sewer in Livermore if analytical results show contaminant concentrations below established discharge limits and a signed sewer release authorization is issued by the

Wastewater Guidance and Monitoring Group. All disposable items are handled as hazardous or toxic waste unless test results indicate otherwise. Swipe samples of the affected area and equipment are taken. Analytical results from swipes and rinse water are used to verify whether decontamination procedures are complete, based on regulatory thresholds for hazardous waste classification.

All hazardous and toxic wastes are properly packaged and labeled. A waste disposal requisition form is completed and processed for each container. Spill kits and PPE lockers are then restocked.

6.3.2 LLNL Fire Department Decontamination Activities for Large (Levels 2, 3, and 4) Incidents

The LLNL Site 300 Fire Department manages all decontamination efforts following large incidents. Their decontamination procedures are discussed in the *LLNL Fire Department Policies and Procedures* (Volume 1), under Tactical Plan 1607 (LLNL, 1987).

6.4 Internal Notification

In the event of a large hazardous or toxic waste release (Levels 2, 3, or 4 incidents), fire, or other emergency, the observing Supervisor or designee immediately notifies the Emergency Dispatcher at ext 911. (For cellular phones, the emergency number is 422-7595.) If necessary, the Facility Operations Supervisor or alternate will initiate evacuation procedures of facility personnel (see Section 8 for more details). If any questions exist as to the magnitude of the emergency and whether or not the Fire Department should be called in, the Building 883 Container Storage Area Supervisor or alternate should call the Hazards Control ES&H Team to help with the assessment.

If the LLNL Site 300 Fire Department is called, the caller should remain on the line to verify that the dispatcher has the correct information and to receive instructions. The Emergency Dispatcher promptly relays the information over dedicated telephone lines to the immediate response groups. Then, the Dispatcher notifies other requested personnel by the best available method, usually radio page. During off-shift hours, key personnel are notified by telephone or radio page. Response personnel are available on a 24-hour basis.

6.5 External Notification

Off-site agencies are notified as required by the incident level or the need for support. Information is provided by using standardized formats as much as possible, as described in the LLNL *Draft Emergency Plan*. The Emergency Dispatcher, under the direction of the Incident Commander, makes the initial notifications. The Department of Energy Oakland Operations Office, the City of Tracy, San Joaquin County, and appropriate state agencies will be notified and kept informed throughout the emergency. Additionally, if an alert involves a security threat, the Federal Bureau of Investigation is notified.

If the Incident Commander or designee determines that the release, fire, or explosion could threaten human health or the environment or otherwise cause the

implementation of this contingency plan, the Incident Commander reports that finding as discussed in Section 9.2.

7. EMERGENCY EQUIPMENT

This section briefly describes the emergency equipment located at the Building 883 Container Storage Area. This equipment includes the internal and external communication systems, fire suppression system, the water supply, the emergency response and release control equipment, Material Safety and Data Sheets, the emergency lighting systems, and the decontamination equipment. Pertinent emergency equipment is listed in Appendix D with location(s), a basic physical description, and a brief statement of capabilities for each item.

7.1 Internal Communication System

A telephone is located in the Building 883 Container Storage Area (see Figure 7-1). During emergencies, this telephone can be used to notify the Building 883 Container Storage Area Supervisor or an alternate, the LLNL Emergency Dispatcher, and other key personnel. These individuals can help summon additional responders and/or initiate evacuation procedures.

All Hazardous Waste Management Division Operations personnel wear radio pagers and in an emergency can be paged as a group. The “Group 7” code will appear on each pager with the telephone extension to call for instructions. The Building 883 Container Storage Area Supervisor, his or her alternate, the Hazardous Waste Management Division receptionist, or Hazardous Waste Management Division management can activate this system. In addition, several mobile telephones are available to HWM personnel. These may be used in emergencies.

7.2 External Communication System

The Site 300 Emergency Communications System consists of radios, telephones, administrative page system, manual and automatic alarm systems, and messengers. Emergencies called in to ext 911 are received by the Emergency Dispatchers located in Building 313 at the LLNL main site. The Emergency Dispatchers notify the LLNL Fire Department and coordinate response with the Protective Force Dispatcher, referred to as MIKE, in Building 882. Automatic alarms and radio calls are received directly by MIKE. Radio announcements from MIKE are monitored at the Site 300 Fire Station and Medical Building 877. Calls received by MIKE are transmitted for initial response by red emergency telephone system to the Site 300 Fire Station 2, Hazards Control Site 300 Office, Site 300 Medical Department, the LLNL Livermore Emergency Dispatch Center (Building 313) and to the Site 300 Maintenance Machinists Shop. Additional Fire Department apparatus and staff may be automatically dispatched from the Livermore main site. If additional response personnel are needed from the Livermore main site, communication is by telephone or radio.

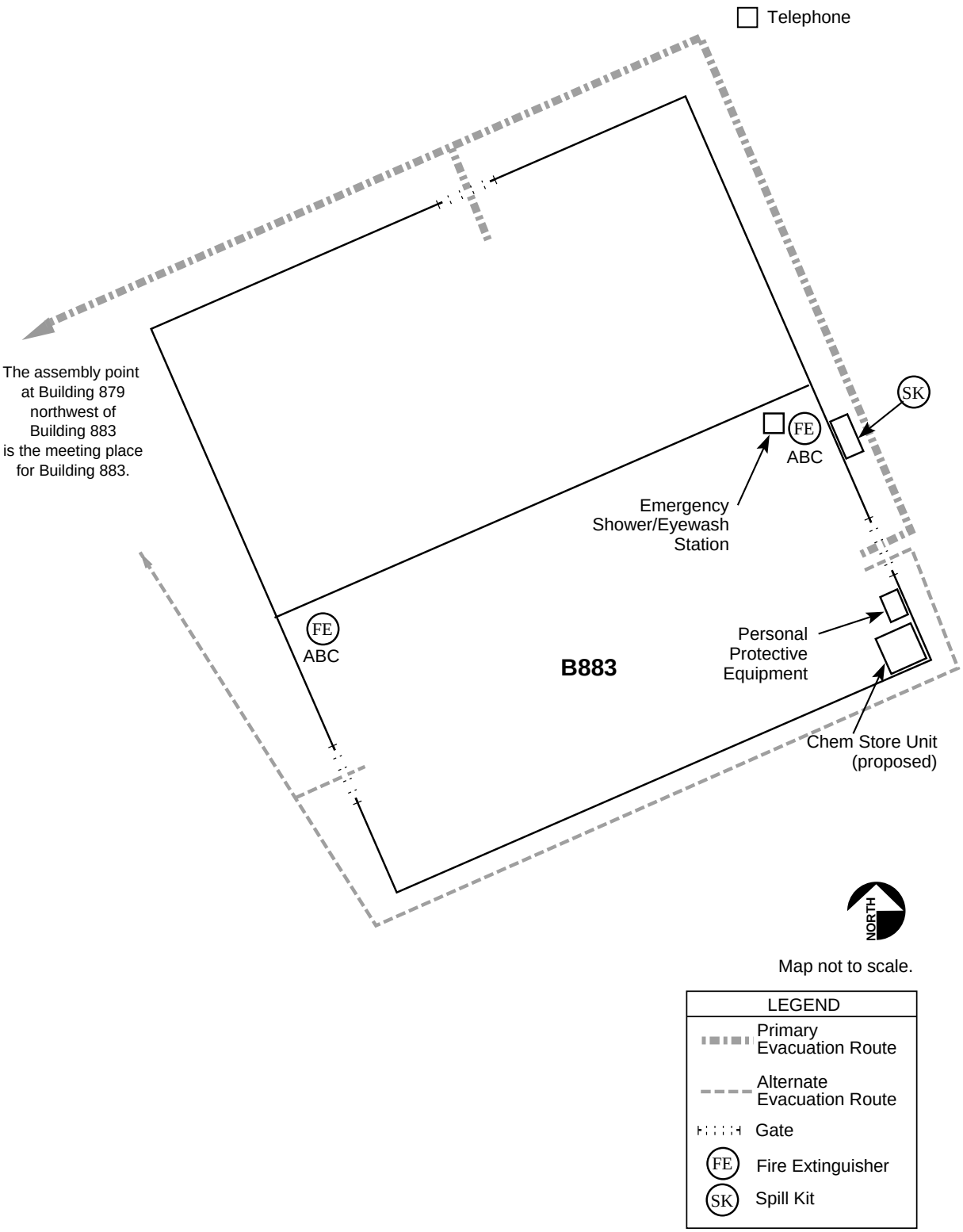


Figure 7-1. Building 883 Evacuation Routes and Emergency and Safety Equipment

Emergency calls received after hours are handled by the Livermore Emergency Dispatcher who, in turn, contacts the Laboratory Emergency Duty Officer. If the incident or emergency involves Site 300, notification will be made to the Senior Protective Force Duty Officer at Site 300. After an initial emergency classification has been made, the Site 300 Senior Protective Force Duty Officer will call the assigned Site 300 Security/Protective Force Representative and the Site 300 Deputy Emergency Manager who will determine whether further notifications are necessary.

If additional calls are deemed necessary, the Site 300 Protective Force Central Alarm Station (CAS) operator has access to lists of knowledgeable personnel as follows:

Emergency Call List
Site 300 Facility Call List for Off-Shift

At the inception of a security emergency, the Senior Protective Force Duty Officer is the Operations Commander until relieved by the responding Security/Protective Force Representative.

If necessary, the Site 300 Satellite Operations Center will be activated and established in Building 871, Fiddleneck Conference Room, at the direction of the Site 300 Manager or Security/Protective Force Representative as necessary.

The Emergency Dispatcher alerts the LLNL Site 300 Fire Department emergency responders. If warranted, the Site 300 Manager or Incident Commander may warn personnel over the site-wide administrative page system of any dangers and necessary precautions, and may also provide evacuation instructions. For localized emergencies, this administrative page system can be used to selectively warn Building 883 Container Storage Area personnel and on-site neighbors. Access to the site-wide administrative page system is available from the CAS operator's console in B882 or the Site 300 Manager's office.

7.3 Fire Suppression System

7.3.1 Fire Extinguishers

Fire extinguishers are manually operated, portable devices that will discharge an extinguishing agent when properly activated. They are used to control a fire during the time between discovery and arrival of the LLNL Site 300 Fire Department. The locations and types of fire extinguishers in the Building 883 Container Storage Area are shown in Figure 7-1. All Hazardous Waste Management Division personnel actively engaged in operations involving hazardous waste are trained in the use of fire extinguishers. Only trained personnel may use fire extinguishers.

Type A extinguishers are used to control fires starting from ordinary combustibles (i.e., paper or wood) and usually contain water.

Type ABC extinguishers are used to control fires starting from either ordinary combustibles, flammable liquids, or electrical sources and usually contain monammonium phosphate.

Type BC extinguishers are used to control fires starting from either flammable liquids or electrical sources and usually contain Purple K Powder (potassium bicarbonate), sodium bicarbonate, CO_2, or Halon.

Type D (metal-x) extinguishers are used to control fires starting from flammable metals (i.e., magnesium) and usually contain sodium chloride.

7.3.2 Water Supply

Water supply for all purposes, including emergency response, is provided to the Building 883 Container Storage Area as a part of the site-wide utility infrastructure under the administration of LLNL Plant Engineering Department.

In the event of unrestrained water flow from damaged or ruptured utilities outside of the Building 883 Container Storage Area, the LLNL Site 300 Fire Department and emergency service Plant Engineering Department personnel are available to shut off flow to the incident area.

7.4 Response Equipment

Several categories of emergency response equipment are available at LLNL Site 300. Additional emergency response equipment is also readily available from the LLNL main site. This includes release response equipment, response vehicles and heavy equipment, site safety equipment, PPE, emergency assembly point kits, and Material Safety Data Sheets.

7.4.1 Release Response Equipment

For small (Level 1) incidents, Hazardous Waste Management Division has access to the contents of an emergency spill kit and spill trailer at the Building 883 Container Storage Area (see Figure 7-1). This kit contains all necessary equipment needed to contain a small release. Appendix E provides a complete spill kit inventory and the capabilities and limitations of each item.

Hazardous Waste Management Division also maintains a release response trailer at the Building 612 Facility that contains bulk quantities of release response equipment used to support the Fire Department for mitigating releases from Levels 2, 3, and 4 incidents.

Lab Special Services Unit, located at Building 323 at the Livermore main site, is a hazardous materials response vehicle operated by the Fire Department. It contains

spill kits, absorbent materials, acid suits, encapsulating hazardous materials suits, self-contained breathing apparatus, test kits, decontamination showers, and hazardous materials reference information.

All emergency equipment is maintained on a regular basis to ensure that it is operational at all times. For preparedness, the water trucks are normally kept full of fuel and water . Preventive maintenance checks are performed by the Automotive Fleet maintenance crew according to the recommended factory schedule.

For large (Levels 2, 3, and 4) incidents, the LLNL Fire Department maintains or has access to a mobile supply of equipment required to mitigate diverse emergencies. The Special Services Unit 1 (at Fire Station 1, Building 323) is a hazardous materials response vehicle operated by the LLNL Fire Department. It contains spill kits, absorbents, acid suits, encapsulating hazardous materials suits, self-contained breathing apparatus, test kits, and hazardous materials reference information.

The major Site 300 fire response equipment includes the following:

- All Fire Department vehicles are equipped with radios on LLNL channels, Twin Valley Mutual Aid channels, and State Mutual Aid channel (White 1, 2, and 3) as well as the CALCORD channel.

- Lab Patrol 12, located at Building 870, is a pumper fire-fighting vehicle. Lab Patrol 12 is specifically designed to operate on the hilly terrain at Site 300 and is equipped with a 1000-gpm pump, a 500-gal water tank, self-contained breathing apparatus, salvage covers, a 1250-W electric generator, radiation meters, air samplers, combustible gas indicators, a standard assortment of hoses, and fire-fighting tools and appliances.

- Lab Rescue 2, located at Building 870, is an ambulance capable of transporting three patients. It carries equipment required by the State of California and Alameda County Office of Emergency Medical Services.

- Lab Patrol 2, located at Building 870, is a four-wheel-drive truck that holds 200 gal of water and a 100-gpm pump.

7.4.2 Response Vehicles and Heavy Equipment

In case of a fire, explosion, or large release of hazardous waste, fire fighting equipment, containment, and emergency equipment are available for use. All LLNL Site 300 Fire Department vehicles are equipped with radios on LLNL channels, Twin Valley Mutual Aid channels, and the State Mutual Aid channel.

The LLNL Site 300 Fire Department can respond within minutes to a medical emergency with an ambulance. Patients are taken to the Site 300 medical station

which is located in B877 or, for severe accidents, are taken to Tracy Memorial Community Hospital.

A variety of heavy equipment is available during an emergency. This equipment includes but is not limited to compressors, cranes, cutting torches, forklifts, generators, pumps, bulldozers, etc. This equipment is located at Site 300, Building 875.

All emergency equipment is maintained on a regular basis to ensure that it is operational at all times. The water trucks are kept full of fuel and water for preparedness. Preventative maintenance checks are performed by the Automotive Fleet maintenance crew according to the recommended factory schedule.

7.4.3 Site Safety Equipment

Eyewash stations, showers, and fire extinguishers are located in the Building 883 Container Storage Area as shown in Figure 7-1.

7.4.4 Personal Protective Equipment

Safety glasses and solid-toe safety shoes are required to be worn at all times when working in waste management operational areas. Coveralls or equivalent are required to be worn at all times by operators handling waste containers. Leather, acid-, base-, or solvent-resistant gloves are worn as appropriate for the waste handling activity. Face shields, goggles, or other facial and eye protection is required to be worn in accordance with Facility Safety Procedures and Operational Safety Procedures when handling open containers of liquid waste. The level of PPE is to be worn is based upon the activity (see Section 3.3.2).

Protective clothing for normal daily operations is maintained in a PPE locker located in the Building 883 Container Storage Area (see Figure 7-1). Although this clothing is intended for protection during routine waste handling operations, they may be accessed during emergency response procedures to supplement protective clothing stored in the emergency spill kits. The daily and emergency PPE lockers are restocked on a weekly basis and contain the items listed below:

- Assorted gloves (cotton, leather, neoprene, Viton, exam, and Nitrile);
- Booties;
- Anticontaminant (Tyvek® or equivalent), disposable coveralls;
- Ear plugs;
- Fogless clear gogglesl;
- Headgear, face shields, and face shield windows;
- Lab aprons (chemically resistant).

Self-contained breathing apparatus (SCBA) units are available for use by qualified personnel during initial release/emergency response actions. SCBA units are available from the LLNL Fire Department response vehicles, including the Special Services Unit 1 hazardous materials emergency truck.

Following evaluation of hazards by the appropriate Hazards Control Department Health and Safety discipline (industrial hygienist, health physicist or other qualified individual), the use of air-purifying respirators may be authorized during release/emergency responses. With this authorization, NIOSH-approved, full-face piece, air-purifying respirators equipped with combination acid gas/organic vapor/high efficiency particulate air (AG/OV/HEPA) filter cartridges are available from supplies. Issue-point control for these respirators is from Hazards Control in Building 871. Alternative types of air-purifying respirators selected by the cognizant Health and Safety discipline are available from the LLNL Respirator Services group in Building 324 at LLNL main site.

These respirators will only be given to personnel who have been properly trained and fitted for respirator use and are listed on the respirator approval list posted in the respirator locker at each of the respective facilities. Individuals who have not been trained or fitted for respirator use may not participate in the waste handling operations requiring the use of respirators.

The respirator wearer is required to inspect the respirator before using it, to ensure its proper working condition. Each stored respirator is inspected by the respirator custodian on a monthly basis for physical integrity and to ensure that the one-year shelf life has not been exceeded.

The respirator lockers are stocked on demand. The number of respirators maintained varies in the Hazardous Waste Management facilities. Respirators are stocked primarily for planned work that require respiratory protection.

Additional respirators (with a variety of cartridges) can be delivered immediately from the LLNL respirator shop if necessary. This shop is responsible for distributing, servicing, and cleaning all respirators used at LLNL. Respirators are worn once and are then discarded. The used respirators are delivered to the respirator shop by the respirator custodian.

The LLNL *Health and Safety Manual* contains more information on the LLNL policy on respirator use.

7.4.5 Emergency Assembly Point Kit (Self-Help Kit)

Protective and emergency equipment is stored in the Self-help kit located at the evacuation assembly point for the Building 883 Container Storage Area (see Figure 7-1). This kit is maintained for major emergencies requiring the evacuation of Building 883 Container Storage Area personnel. It contains first-aid equipment, including a first-aid kit, blankets and stretcher. It also includes the following safety equipment:

flashlights, safety glasses, gloves (plastic, leather, and cotton), and hard hats, among other items. This kit is inspected on a monthly basis, and items are replaced when necessary.

7.4.6 Material Safety Data Sheets

Material Safety Data Sheets (MSDSs) list the characteristics and hazards of a chemical. An MSDS can be obtained in three ways at LLNL: (1) from the Hazards Control MSDS Hotline (423-2122), (2) from a chemist in the HWM Technology and Information Section (423-6059, 422-8834), and (3) from the Hazardous Waste Management Division's Requisition Control Office (422-9837). The Hazards Control Department maintains files of MSDSs for chemicals routinely used at LLNL. Copies of these MSDSs are available on request. Supply and Distribution also has MSDSs for all products that they purchase.

7.5 Emergency Lighting

See Section 6.2.3 for the types of emergency equipment available in the event of a power outage.

7.6 Decontamination Equipment

The Hazardous Waste Management Division maintains equipment for decontaminate areas that were in contact with the released hazardous or toxic materials or wastes. This includes containment booms, mops, brooms, shovels, steam cleaner, pressure washer, electric floor scrubber, and a mercury vacuum cleaner. The steam cleaner and pressure washer are stored at the Support Services Group equipment yard at Building 419 and are inspected monthly. The electric floor scrubber and mercury vacuum cleaner are stored in Building 625. The equipment is inspected on a monthly basis. Chemical solutions used in decontamination operations are presented in Appendix F.

The LLNL Fire Department also maintains decontamination supplies for personnel and/or equipment decontamination. The Tactical Plan 1607 in LLNL *Fire Department Policies and Procedures,* Volume 1 (LLNL, 1987), contains a discussion of the LLNL Fire Department's decontamination equipment.

8. EVACUATION PLAN

The evacuation plans for the Building 883 Container Storage Area and for LLNL Site 300 are established in the event that an emergency requires the evacuation of either the Building 883 Container Storage Area or the site.

8.1 Building 883 Container Storage Area Evacuation Plan

Notifying Building 883 Container Storage Area personnel of an emergency evacuation is made by means of the LLNL site-wide emergency paging system on verbal instruction from the Supervisor or facility personnel. Evacuation procedures for the

general facility staff, the Building 883 Container Storage Area Supervisor (or alternate), and the Assembly Point Leader are outlined in the following sections.

8.1.1 General Building 883 Container Storage Area Staff

HWM personnel from Building 883 are to follow the guidance provided in the *Self-Help Plan* up to the point they report to the Assembly Point southwest of Building 879 at Site 300. At this location, Building 883 personnel are to follow instructions provided by the Assembly Point Leader or most senior member of management at the Building 879 Assembly Point. At this location, further guidance will be provided by several Site 300 documents, including the *Emergency Management Plan, Emergency Self-Help Guidelines,* and the *Building 879 Emergency Self-Help Guidelines.*

General Building 883 Container Storage Area staff (including technicians/technologists) follow these steps in a large-scale emergency (that requires evacuation):

- Remain in the Building 883 Container Storage Area until it is safe to leave.
- Shut down operating equipment.
- Upon hearing the evacuation announcement, leave the building/facility by the closest safe exit and go to the designated assembly point; in general, exit to the west (or upwind). See Figures 7-1 and 8-1 for evacuation routes from the general Building 883 Container Storage Area.
- Notify others who do not seem to be aware of the evacuation order.
- Wait at the Emergency Assembly Point for instructions from the Emergency Management Center; in the interim, follow the Assembly Point Leaders instructions.

8.1.2 Building 883 Container Storage Area Supervisor or Alternate

The Building 883 Container Storage Area Supervisor or alternate follows these steps in a large-scale emergency (that requires evacuation):

- Remain in the Building 883 Container Storage Area until it is safe to leave.
- Notify personnel of the evacuation order.
- Act as Sweep Team Leader; help the Assembly Point Leader organize a sweep team.

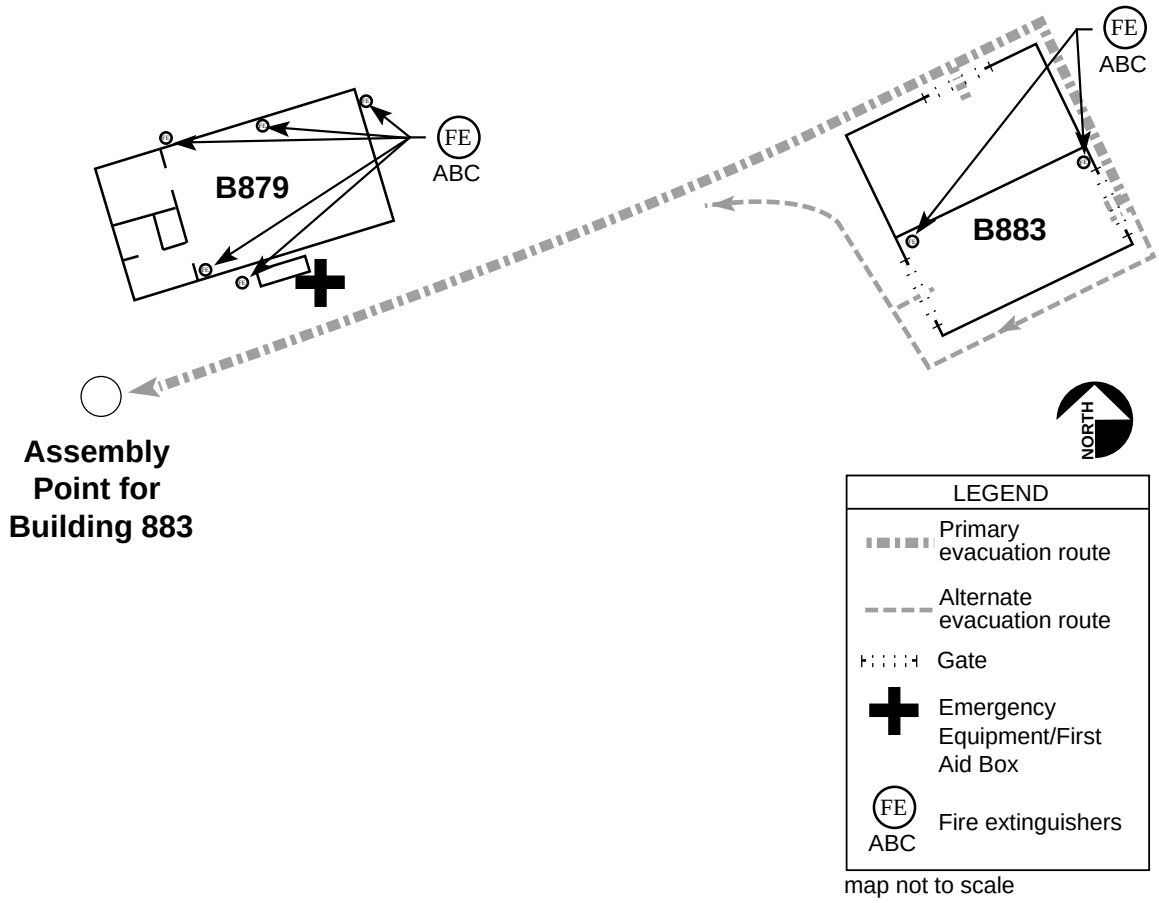


Figure 8-1. Location of Assembly Point in Relation to Building 883

- Conduct a rapid sweep of the Building 883 Container Storage Area to locate unaccounted for personnel who may be injured, provide assistance to any person in trouble, and observe the general condition of the Building 883 Container Storage Area.

- Ensure that all personnel have left their respective operational areas. Notify individuals who do not seem aware of the evacuation order.

- Go to the Emergency Assembly Point, await instructions from the Site 300 Satellite Operations Center; in the interim, follow the Assembly Point Leader's instructions.

8.1.3 Assembly Point Leader

Assembly Point Leaders provide local command and control of an emergency situation during periods when emergency response forces are unable to assist. They are guided by self-help plans for the assigned area, which are coordinated with a Lab-wide self-help program. Assembly Point Leaders are familiar with the facilities, programs, personnel, and resources within their assembly area. They follow these steps from the *Self-Help Plan* in a large-scale emergency (that requires evacuation):

- Remain in the Building 883 Container Storage Area until it is safe to leave.

- Go to the designated emergency assembly point for the Building 883 Container Storage Area .

- Establish a command post

- Organize a Sweep Team for the purpose of locating and rescuing trapped, injured, or incapacitated employees inside; locating/controlling fires, leaks, and releases; and assessing structural damage to the facility.

- Arrange for transportation and first aid for injured employees.

- Maintain direct communication with the Sweep Team Leader by radio communication or runner.

- Communicate an assessment of the situation to the Satellite Operations Center and emergency response forces (as described in the *LLNL Draft Emergency Plan*).

8.2 Evacuation Routes

Personnel should evacuate through the nearest exit unless the exit is blocked or could place the individual in danger. In general, primary evacuation routes are to

the west of the facility. If this is unsafe or otherwise not feasible, escape should be made through the nearest alternate exit. Since prevailing winds are from the west, western evacuation routes are recommended to stay upwind of any hazardous waste release. Primary and alternate routes for evacuation are presented in Figure 8-1.

8.3 LLNL Site 300 Evacuation Plan

If a major emergency develops that requires the evacuation of personnel from all or part of LLNL Site 300, the Protective Force Division will implement actions to control evacuating personnel, protect the on-site emergency scene, and coordinate activities with outside police organizations. The Protective Force Division, with concurrence of the Deputy Emergency Manager, will initiate one of the operational responses described in the Site 300 *Emergency Evacuation Plan.* An event requiring evacuation could be caused by an on-site or off-site emergency such as an earthquake, fire, explosion, or major toxic material release. The Laboratory Emergency Duty Officer or Site 300 Manager is authorized to implement area or site-wide evacuation procedures if deemed necessary after receiving a situational assessment from the Incident Officer. Authority and procedures for evacuating a single facility or a small area are not included in this plan. In either case, the Fire Department controls the on-site emergency, and the Protective Force Division controls personnel. Coordination with outside law enforcement agencies is also necessary so that traffic exiting Site 300 is allowed to flow in an orderly fashion away from the threat and into the outlying community.

8.4 Building 883 or Area Evacuation

The Building 883 Container Storage Area Supervisor, Senior Fire Officer, Incident Commander, or Site 300 Manager or his designated alternate can prescribe evacuation of the building and adjacent area if, in their judgment, a hazard or potential hazard exists. Site 300 emergency procedures and self-help plan will be followed during the evacuation.

Personnel will assemble in predetermined LLNL self-help plan assembly points, making sure they are upwind or in a safe zone. The Building 883 Container Storage Area designated assembly point is located southwest of Building 879 and is shown in Figure 8-1.

In general, administrative page, telephone, radio announcements, or directions by the person in charge will be issued. Individual discretion will be used if it appears that evacuating the building would increase injury potential. In that case, a sheltered location, such as a control room, will be sought in the building.

8.5 Site 300 Evacuation

A site-wide administrative page, telephone, or radio announcement will be issued to evacuate the site if the Incident Commander, in concert with the Site 300 Manager, feels that this action is necessary. His decision will be based on technical information

received from emergency response personnel and also on meteorological information provided by the Site 300 ARAC Meteorological Facility.

Corral Hollow Road is the only off-site evacuation route for Site 300. Traffic will be coordinated by county and state authorities once vehicles exit Site 300. Evacuation to the east or the west on the road will be based on cloud path or potential cloud path patterns. Site 300 ARAC meteorological support personnel will be available to provide assistance upon request.

8.6 Wide Area Evacuation

If his assessment indicates that evacuation of local areas may be advisable, the Incident Commander will immediately notify appropriate local authorities via the Fire Division's Emergency Dispatcher. The Incident Commander and Site 300 Manager and his technical staff will provide information, such as ARAC data, to assist appropriate officials in evacuation decisions.

9. RECORD-KEEPING AND INCIDENT REPORTING

9.1 Internal Reporting

Employees shall notify the Building 883 Container Storage Area Operations Supervisor of all release incidents (large or small) and the Fire Department of all large incident releases (exceeding Level 1), fires, or other emergencies. The Supervisor will gather preliminary information and then must immediately notify upper management, the Hazards Control ES&H Team, and the Environmental Analyst.

The Environmental Analyst evaluates the incident to determine what was released and if the incident is reportable to a state or federal agency. He or she prepares an internal incident report for all incident levels and submits these to Environmental Protection Department and other LLNL management. A copy of this report is filed by Hazardous Waste Management Division.

An employee who becomes ill or is injured as a result of a job-related accident must notify his supervisor and report to Health Services. Health Services personnel will then collect pertinent information and forward it through the Hazards Control ES&H Team to the employee's department for analysis.

The Environmental Protection Department management, after being informed of a major accident or high-risk incident, must ensure that an incident analysis takes place with the objective of providing information about the nonidentified hazards or less-than-adequate controls that resulted in the incident. Recommendations for corrective measures will be included in the report, and copies shall be distributed to management, Hazards Control, and others who will benefit from information contained in the report. Hazards Control maintains a central file of all incident analysis reports and provides follow-up information. Summary reports are prepared by Hazards Control personnel and are freely distributed within LLNL.

9.2 External Reporting

Releases must be reported to a variety of agencies under different circumstances. In all instances, both verbal and written notification are required.

The Environmental Protection Department (EPD) responds to all reports of releases or other environmental occurrences through a well-established reporting process. EPD has established a 7-days-a-week, 24-hours-a-day, on-call, rotational position called the Environmental Duty Officer (EDO), who can be reached by pager or cellular phone at any time. The EDO determines the reporting requirements, works with environmental analysts and with Laboratory management on the process of notifying federal, state, and local regulatory agencies and DOE, and provides advice on immediate clean-up and monitoring necessary to protect the environment. The EDO responds to occurrences throughout LLNL, in addition to HWM facilities.

9.2.1 Verbal Reports

Whenever the release could threaten human health, safety, or the environment outside the LLNL facility boundaries, verbal notifications are necessary to agencies listed in Table 9-1. A release could threaten health and safety outside the LLNL facility if any of the following conditions is met:

- The release directly results in an injury or illness off-site, that requires medical attention.
- The exposure of the public to the released material exceeds the American Conference of Governmental Industrial Hygienist's (ACGIH) allowed threshold limit.
- The release requires evacuation of the population surrounding LLNL.

A release threatens the environment if either of the following conditions is met:

- The quantity of released material at the LLNL facility meets or exceeds the reportable quantity (RQ) as defined in CERCLA.
- The Environmental Analyst determines that the release constitutes a potential threat to the environment.

Whenever the release could threaten human health, safety, or the environment within LLNL boundaries, verbal notifications are necessary to agencies listed in Table 9-2**.** Criteria for determining if the health and safety of LLNL employees are threatened are as follows:

- The release directly results in an injury or illness that requires medical attention.

Table 9-1. Verbal Reports to Agencies for a Release That Threatens Health and Safety Outside LLNL Boundaries

Agency	When	Phone Number
California Office of Emergency Services	Immediately after discovery	(800) 852-7550
Department of Toxic Substances Control, Region 2	Immediately after discovery	(510) 540-3739
National Response Center	Immediately after releasing PCBs greater than 1 lb. Within 24 hours after releases of PCBs greater than 10 lb.	(800) 424-8802
EPA Region IX	Immediately after discovery	(415) 744-1120
Office of Emergency Services, Stockton	Immediately after discovery	(209) 468-3962
Stanislaus County Emergency Medical Services, Modesto	Immediately after discovery	(209) 529-5085
Central Valley Regional Water Control Board	Immediately after discovery	(916) 255-3030

NOTE: Contacts with outside agencies (City of Livermore, City of Tracy, Alameda County Sheriff, San Joaquin County Sheriff, California Highway Patrol, etc.) are made at the discretion of the appropriate designated LLNL representative. In most cases this representative will be the Environmental Duty Officer.

- The exposure of personnel to the released material exceeds the ACGIH's allowed threshold limit.
- The release requires the evacuation of the Building 883 Container Storage Area or other LLNL facilities.

Whenever the Building 883 Container Storage Area Contingency Plan is implemented, verbal reports are also necessary to agencies listed in Table 9-2. The Building 883 Container Storage Area Contingency Plan must be implemented if any one of the following actions occur:

- The Building 883 Container Storage Area is evacuated due to an incident.
- The Building 883 Container Storage Area personnel request the LLNL Fire Department's assistance in handling an incident and cleaning up the release (e.g., the release is from a large, Level 2, 3, or 4 incident).
- The incident results in injuries to personnel that require medical attention.

Table 9-2. Verbal Reports to Agencies for a Release That Threatens Health and Safety Within LLNL Boundaries

Agency	When	Phone Number
Department of Toxic Substances Control, Region 2	Immediately after discovery	(510) 540-3739

All verbal reports will include the following:

- Name and telephone number of the reporter.
- Name and address of the facility.
- Time and type of incident (e.g., release or fire).
- Name and quantity of material(s) involved, to the extent known.
- Extent of injuries, if any.
- Possible hazards to human health or the environment outside the LLNL Site 300 facility boundaries.
- Actions taken and status of facility.

All verbal notification to the U.S. Department of Energy for hazardous and toxic releases are completed in accordance with DOE Order 5000.3B (Occurrence Reporting).

The Operations and Regulatory Affairs Division Leader (or designee) of LLNL's Environmental Protection Department is responsible for all required verbal notifications to state or federal agencies.

9.2.2 Written Reports

Agencies listed in Table 9-3 must receive written reports for all releases that could threaten human health and the environment outside the LLNL facility boundaries.

Whenever a hazardous waste release could threaten human health, safety or environment within LLNL, or whenever the Building 883 Container Storage Area contingency plan is implemented, the Environmental Protection Agency Region IX Administrator and the Department of Toxic Substances Control, Region 2, must be notified in writing. The due date for the report and the agency addresses for these two agencies are the same as shown in Table 9-3. The California Office of Emergency Services need not be notified unless the incident is assessed as representing a threat to human health and the environment outside the LLNL facility boundaries.

All written reports will include the following:

- Name, address, and telephone number of the owner or operator (LLNL).
- Name, address, and telephone number of the Building 883 Container Storage Area.

Table 9-3. Written Reports to Agencies for a Release That Threatens Human Health and Safety

Agency	Notification Required	Address
Environmental Protection Agency	Within 15 days of the incident	Regional Administrator U.S. EPA Region IX 215 Fremont St. San Francisco, CA 94195
California Office of Emergency Services	Within 5 days of the incident	Office of Emergency Services 2800 Meadow View Road Sacramento, CA 95832
Department of Toxic Substances Control, Region 2	Within 15 days of the incident	California EPA Department of Toxic Substances Control 700 Heinz Avenue Suite 200 Berkeley, CA 94710

NOTE: Depending on the particular circumstances of the incident, there may be additional written reports required to other agencies. Contact the Environmental Duty Officer for assistance with verbal and written reporting requirements. Also, refer to UCRL-AR-1-5193 *Environmental Incident and Reporting Procedure* for a complete description of reporting requirements.

- Date, time, and type of incident (e.g., release, fire, or explosion).
- Name and quantity of material(s) involved.
- Extent of injuries, if any.
- Assessment of actual or potential hazards to human health or the environment, when this is applicable.
- Estimated quantity and disposition of recovered material that resulted from the incident.
- Notice that incompatible wastes were not being handled until cleanup procedures were completed and that all equipment listed in the contingency plan is cleaned and fit for its intended use.

All written notification to the U.S. Department of Energy for hazardous and toxic releases are completed in accordance with DOE Order 5000.3A.

The Environmental Operations Group's Environmental Analyst (assigned to the Building 883 Container Storage Area) will write the appropriate reports to regulatory agencies for incidents occurring during normal working hours. The EDO evaluates, classifies, and writes all necessary reports for incidents occurring during off-work hours. The EDO position rotates among qualified Environmental Analysts within the Environmental Protection Department. Each EDO is on-call 24 hours a day for a one-week period (including weekends and holidays).

All written reports will be reviewed and forwarded to the appropriate regulatory agency by the Environmental Protection Department Head.

In addition, emergencies requiring activation of the Emergency Management Center will be subject to the reporting requirements of the *LLNL Draft Emergency Plan.*

All Hazardous Waste Management Division-related incident reports (both reportable and recordable) are maintained in the files at the Hazardous Waste Management facility. These files represent Hazardous Waste Management facility operating records.

10. REFERENCES

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APPENDIX A

Personal Protective Equipment Guidelines

Appendix A Personal Protective Equipment Guidelines *

Waste Category	Examples of Waste	Gloves	Protective Clothing	Respirator (see note)
Acid Waste	Mineral acid (sulfuric, hydrochloric, hydrobromic)	Wear polylaminate (Silver Shield® or Safety 4-H®) and neoprene or nitrile gloves	Full body, chemically resistant, protective coveralls (Chemrel or equivalent) and PVC† boots or polyethylene booties	Full face air-purifying respirator with AGOV/HEPA cartridges††
	Organic Acid	Wear polylaminate (Silver Shield® or Safety 4-H®) and neoprene or nitrile gloves	Full body, chemically resistant, protective coveralls (Chemrel or equivalent) and PVC boots or polyethylene booties	Full face air-purifying respirator with AGOV/HEPA cartridges††
	Perchloric acid	Call LLNL Fire Department (ext 911)		
	Hydrofluoric acid	Call LLNL Fire Department (ext 911)		
	Chromic acid	Wear polylaminate (Silver Shield® or Safety 4-H®) and neoprene or nitrile gloves	Full body, chemically resistant, protective coveralls (Chemrel or equivalent) and PVC boots or polyethylene booties	Full face air-purifying respirator with AGOV/HEPA cartridges††
Aqueous Waste	Spent photo chemicals, rinse waters, spent plating solutions, machine coolants	Neoprene	Polyethylene coated full body Tyvek coveralls or full body, chemically resistant, protective coveralls (Chemrel or equivalent) and polyethylene booties	Full-face air-purifying respirator with AGOV/HEPA cartridges††
Caustic Waste	Sodium hydroxide, potassium hydroxide, calcium hydroxide	Wear polylaminate (Silver Shield® or Safety 4-H®) and neoprene or nitrile gloves	Full body, chemically resistant, protective coveralls (Chemrel or equivalent) and PVC boots or polyethylene booties	Full face air-purifying respirator with AGOV/HEPA cartridges††
	Ammonia	Wear polylaminate (Silver Shield® or Safety 4-H®) and neoprene or nitrile gloves	Full body, chemically resistant, protective coveralls (Chemrel or equivalent) and PVC boots or polyethylene booties	Full face respirator with ammonia cartridge
Flam-mable Liquids Waste	Gasoline, acetone, toluene, xylene, ethanol	Wear polylaminate (Silver Shield® or Safety 4-H®) and neoprene or nitrile gloves	Full body, chemically resistant, protective coveralls (Chemrel or equivalent) and PVC boots or polyethylene booties	Full face air-purifying respirator with AGOV/HEPA cartridges††
PCB Waste	PCB-contaminated oil, transformer fluid, capacitor fluid	Wear polylaminate (Silver Shield® or Safety 4-H®) and neoprene or nitrile gloves	Full body, chemically resistant, protective coveralls (Chemrel or equivalent) and PVC boots or polyethylene booties	Full face air-purifying respirator with AGOV/HEPA cartridges††
Strong Oxidizers	Chromic acid, nitric acid (above 40%), perchloric acid (above 40%)	Chemical specific selection required. To be determined by Hazards Control .		
	Nitrates, perchlorates, chlorine, chlorites, chlorates, peroxides, and permanganates	Chemical specific selection required. To be determined by Hazards Control .		
Water Reactives DO NOT USE WATER	Lithium hydride, sodium and potassium metals, uranium turnings, and acetyl chlorides	Call LLNL Fire Department (ext 911).		

* Contact Hazards Control Safety Team to verify adequacy of equipment for specific release.
† Polyvinyl chloride.
†† Acid gases/organic vapors/HEPA (AGOV/HEPA).

NOTE: Respirator use is dependent on quantity, type, and location of material released. They are to be used only within limitations of respirator and cartridge. Air purifying respirators will only be issued following an assessment by the appropriate Hazards Control Safety discipline. SCBA respirators may be substituted.

APPENDIX B

Equipment to Contain and Absorb Spills

Appendix B. Equipment to Contain and Absorb Spills *

Waste Category	Type of Equipment	Material	Additional Equipment*
Acid	Absorbent socks	Polyethylene pulp	Polypropylene shovels Polyethylene bags Brooms (chemically resistant) Dust pan (chemically resistant) Caution tape pH paper
	Absorbent (loose)	Silicates (Floor Dry: diatomaceous earth or equivalent)	
	Acid neutralizer/ Absorbent	Magnesium oxide, sodium bicarbonate, Neutrasorb, Kolor-Safe acid, or equivalent	
Aqueous	Absorbent socks	Polyethylene pulp	Polypropylene shovels Polyethylene bags Brooms (chemically resistant) Dust pan (chemically resistant) Caution tape
	absorbent (loose)	Silicates (Floor Dry: diatomaceous earth or equivalent)	
Caustic	Absorbent socks	Polyethylene pulp	Polypropylene shovels Polyethylene bags Brooms (chemically resistant) Dust pan (chemically resistant) Caution tape pH paper
	Absorbent (loose)	Silicates (Floor Dry: diatomaceous earth or equivalent)	
	Caustic neutralizer	Spill-x-c, Neutracit, Kolor-Safe base, or equivalent	
Flammable Liquids	Absorbent socks	Polyethylene pulp	Polypropylene shovels Polyethylene bags Brooms (chemically resistant) Dust pan (chemically resistant) Caution tape
	Absorbent (loose)	Silicates (Floor Dry: diatomaceous earth or equivalent)	
	Solvent absorbent	Spill-x-s, Solusorb, or equivalent	
PCB	Absorbent socks	Polyethylene pulp	Polypropylene shovels Polyethylene bags Brooms (chemically resistant) Dust pan (chemically resistant) Caution tape
	Absorbent (loose)	Silicates (Floor Dry: diatomaceous earth or equivalent)	
	Detergent	Powerclean 151 or equivalent	
Strong Oxidizers	Absorbent socks	Polyethylene pulp	Polypropylene shovels Polyethylene bags
	Absorbent (loose)	Silicates (Floor Dry: diatomaceous earth or equivalent)	Brooms (chemically resistant) Dust pan (chemically resistant) Caution tape pH paper

* See Appendix E (Emergency Spill Kit Supplies) for a more complete list.

APPENDIX C

Waste Absorption and

Neutralization Guidelines

Appendix C. Waste Absorption and Neutralization Guidelines

Waste Category	Guidelines to Absorb and/or Neutralize
Acid	Contain the release by surrounding it with absorbent socks or by diking the perimeter with scoops of loose absorbent material compatible with the substance released. Begin at the side(s) where flow is most rapid and on side(s) where release flows toward drains or other conduits to the environment. Next, cover the release with loose, compatible absorbent material, working from the perimeter inward toward the center. Use sufficient quantities to completely cover the liquid. An acid neutralizing absorbent may be substituted, if neutralization is desired. Carefully stir the absorbent-covered release with a shovel. The mixture will change color when the acid is neutralized. Very small releases may be contained and absorbed solely with an absorbent sock. When the release is completely soaked up, discard all absorbent material as hazardous waste. Use a shovel to scoop up the loose absorbent. A chemically resistant broom and dust pan may be used to sweep up absorbent residue. Use wetted absorbent towels or pads to clean surface area until it tests neutral with pH paper.
Aqueous	Contain the release by surrounding it with absorbent socks or by diking the perimeter with scoops of loose absorbent material compatible with the substance released. Begin at the side(s) where flow is most rapid and on side(s) where release flows toward drains or other conduits to the environment. Next, cover the release with loose compatible absorbent material, working from the perimeter inward toward the center. Use sufficient quantities to completely cover the liquid. Carefully stir the absorbent-covered release with a shovel. Very small releases may be contained and absorbed solely with an absorbent sock. When the release is completely soaked up, discard all absorbent material as hazardous waste. Use a shovel to scoop up the loose absorbent. A chemically resistant broom and dust pan may be used to sweep up absorbent residue. Use wetted absorbent towels or pads to clean surface.
Caustic	Contain the release by surrounding it with absorbent socks or by diking the perimeter with scoops of loose absorbent material compatible with the substance released. Begin at the side(s) where flow is most rapid and on side(s) where release flows toward drains or other conduits to the environment. Next, cover the release with loose, compatible absorbent material, working from the perimeter inward toward the center. Use sufficient quantities to completely cover the liquid. A caustic neutralizing absorbent may be substituted, if neutralization is desired. Carefully stir the absorbent-covered release with a shovel. The mixture will change color when the caustic is neutralized. Very small releases may be contained and absorbed solely with an absorbent sock. When the release is completely soaked up, discard all absorbent material as hazardous waste. Use a shovel to scoop up the loose absorbent. A chemically resistant broom and dust pan may be used to sweep up absorbent residue. Use wetted absorbent towels or pads to clean surface area until it tests neutral with pH paper.

Appendix C. Waste Absorption and Neutralization Guidelines (Continued)

Waste Category	Guidelines to Absorb and/or Neutralize
Flammable Liquid	Contain the release by surrounding it with absorbent socks or by diking the perimeter with scoops of loose absorbent material compatible with the substance released. Begin at the side(s) where flow is most rapid and on side(s) where release flows toward drains or other conduits to the environment. Next, cover the release with loose compatible absorbent material, working from the perimeter inward toward the center. Use sufficient quantities to completely cover the liquid. Carefully stir the absorbent-covered release with a shovel. Very small releases may be contained and absorbed solely with an absorbent sock. When the release is completely soaked up, discard all absorbent material as hazardous waste. Use a shovel to scoop up the loose absorbent. A chemically resistant broom and dust pan may be used to sweep up absorbent residue. Use wetted absorbent towels or pads to clean surface. Seal contaminated clothing and absorbent material in a vapor-tight container.
PCB	Contain oily release by surrounding it with absorbent socks. These are easier to clean up than loose absorbent. Next, cover the release with absorbent socks, working from the perimeter of the release inward toward the center. (Loose absorbent may be used for this step, if desired. Stir the pile of absorbent carefully.) When the PCB is totally absorbed, carefully place the socks into a disposal bag or directly into an appropriate waste container. (If applicable, shovel loose absorbent into a waste container.) Solid surfaces must be double washed or rinsed with kerosene or an appropriate detergent (an equivalent solvent in which PCBs are at least 5 percent soluble by weight). Keep area cordoned off until swipe samples are collected, analyzed, and approved.
Acid Oxidizer	Contain the release by surrounding it with absorbent socks or by diking the perimeter with scoops of loose absorbent material compatible with the substance released. Begin at the side(s) where flow is most rapid and on side(s) where release flows toward drains or other conduits to the environment. Next, cover the release with loose, compatible absorbent material, working from the perimeter inward toward the center. Use sufficient quantities to completely cover the liquid. An acid neutralizing absorbent may be substituted, if neutralization is desired. Carefully stir the absorbent-covered release with a shovel. The mixture will change color when the acid is neutralized. Very small releases may be contained and absorbed solely with an absorbent sock. When the release is completely soaked up, discard all absorbent material as hazardous waste. Use a shovel to scoop up the loose absorbent. A chemically resistant broom and dust pan may be used to sweep up absorbent residue. Use wetted absorbent towels or pads to clean surface area until it tests neutral with pH paper.
Other Oxidizer	Contain the release by surrounding it with absorbent socks or by diking the perimeter with scoops of loose absorbent material compatible with the substance released. Begin at the side(s) where flow is most rapid and on side(s) where release flows toward drains or other conduits to the environment. Next, cover the release with loose compatible absorbent material, working from the perimeter inward toward the center. Use sufficient quantities to completely cover the liquid. Carefully stir the absorbent-covered release with a shovel. Very small releases may be contained and absorbed solely with an absorbent sock. When the release is completely soaked up, discard all absorbent material as hazardous waste. Use a shovel to scoop up the loose absorbent. A chemically resistant broom and dust pan may be used to sweep up absorbent residue. Use a wetted absorbent pad to clean surface.

APPENDIX D

Emergency Equipment List

and Schedule for Testing

Appendix D. Emergency Equipment List and Schedule for Testing*

Item	Building Location	Physical Description	Capabilities	Inspection Frequency	Responsible Person/ Group
Telephones	See Figure 7-1	Touch tone telephone	Call supervisor, emergency dispatcher, or other key personnel; access paging system throughout the facility	Weekly	Hazardous Waste Management Facility Supervisor
Building 883 Container Storage Area Paging System	Building 883 Container Storage Area	Activated by dialing "#133" on a touch tone telephone	Audio notification of an emergency to Building 883 Container Storage Area personnel; may communicate an evacuation order	Weekly	Hazardous Waste Management Facility Supervisor
Radio Pagers	Worn by all operations personnel who handle hazardous waste at all Hazardous Waste Management facilities	Small, battery-operated, personnel radio pagers worn by Hazardous Waste Management operations personnel	Notify personnel to call a certain extension for instructions	Daily (when in use)	Hazardous Waste Management Operations Personnel
Eye Wash Station	See Figure 7-1	Two soft-spray outlet heads equipped with float-off dust covers to keep out contaminants	Flush irritants and/or toxics from the eyes without causing further injury	Weekly	Hazardous Waste Management Facility Supervisor
Showers	See Figure 7-1	High visibility ABS plastic shower head with IPS stay-open ball valve	Wash irritants and/or toxics from skin without causing further injury	Weekly	Hazardous Waste Management Facility Supervisor
Emergency Personal Protective Equipment	See Figure 7-1	See Section 7.4.4	Protect personnel from exposure to hazardous constituents. Generally maintained for planned work but can also be used in emergency response situations	Checked weekly	Hazardous Waste Management Support Services Supervisor
Self-Help Kit	At the Building 883 assembly point (Figure 7-1) weatherproof box	See Section 7.4.5	Contain first aid and other emergency equipment to be used in the event of an emergency	Monthly	Hazardous Waste Management Support Services Supervisor

* Maintenance performed as necessary based on inspection results.

Appendix D. Emergency Equipment List and Schedule for Testing (Continued)

Item	Building Location	Physical Description	Capabilities	Inspection Frequency	Responsible Person/ Group
Emergency Electric Generator	Portable generators in B419 and in the release response trailer in B612 yard	Gas powered portable electricity generators (1500 watt/3 HP)	Provides electricity for emergency lighting or equipment	Monthly	Hazardous Waste Management Support Services Supervisor
Berms and Secondary Containment	Building 883 Container Storage Area	Cement, asphalt, and other engineered control structures used to provide containment of wastes during normal operations and emergencies	Physical barriers used to segregate, store, and contain wastes	Weekly	Hazardous Waste Management Facility Supervisor
Release Response Trailer	Parked north of Building 883-2 Container Storage Unit	Trailer stocked with bulk emergency release response equipment	Backup to LLNL Fire Department for large release mitigation	Weekly	Hazardous Waste Management 612 Facility Supervisor
Fire Hydrants	Building 883 Container Storage Area	Volumetric flow rate: 1110 gpm Static pressure: 67 psi Residual pressure: 56 psi	Provide a ready supply of water for manual firefighting	Quarterly	LLNL Fire Department
Spill Kits	See Figure 7-1	See Appendix E	See Appendix E	Weekly (inventory completeness) Quarterly (for content integrity)	Hazardous Waste Management Facility Supervisor

Appendix D. Emergency Equipment List and Schedule for Testing (Continued)

Item	Building Location	Physical Description	Capabilities	Inspection Frequency	Responsible Person/ Group
Fire Extinguishers	See Figure 7-1	Manually operated, portable devices that will discharge an extinguishing agent when properly activated. Lightweight aluminum or heavy-duty steel cylinders (depending on "type" of extinguisher) that are corrosion and impact resistant with polyester/epoxy paint finish	Control small fires during the time between discovery and arrival of the LLNL Fire Department. Type A extinguishers control fires starting from ordinary combustibles (i.e., paper or wood) and usually contain water Type ABC extinguishers control fires starting from either ordinary combustibles, flammable liquids, or electrical and usually contain monammonium phosphate. Type BC extinguishers control fires starting from either flammable liquids or electrical and usually contain Purple K Powder (potassium bicarbonate), sodium bicarbonate, CO_2, or Halon Type D (metal-x) extinguishers control fires starting from flammable metals (i.e., magnesium) and usually contain sodium chloride.	Weekly Annual	Hazardous Waste Management Facility Supervisor LLNL Fire Department

APPENDIX E

Emergency Spill Kit Supplies for the Building 883 Container Storage Area

Appendix E. Emergency Spill Kit Supplies for the Building 883 Container Storage Area

Unit	Quantity	Item/Specifications	Capabilities	Limitations
Each	3	Chemically resistant protective coveralls (Chemrel or equivalent)	Provides for chemical and abrasion resistance. Resistant to acids (including hydrofluoric), caustics (including sodium hydroxide 50%), organic solvents (including acetone 90%), PCBs, petroleum oils, and many other chemicals. Elastic wrists and ankles provide splash protection	Disposable coverall designed for limited contact during chemical response activities. Limited breakthrough protection for: ethers (1 min), bromine liquid 99% (3 min), chloroform 99% (4 min), carbon disulfide (5 min), methylene chloride 99% (5 min)
Each	3	Face shields with clear windows (polycarbonate shield)	Chemically resistant face shield for splash protection. Complies with ANSI Z87.1-1989	Must be worn with safety glasses
Each	3	Goggles, clear (chemically resistant, polycarbonate lens)	Provides resistance and splash protection against mild acids, caustics, aromatic hydrocarbons, and methylene chloride. Complies with ANSI Z87.1-1989	Provides limited vapor protection. Does not provide complete face protection; eye protection only
Pair	8	Gloves, neoprene	Case-hardened latex neoprene provides exceptional protection against abrasions, cuts, punctures, and a wide range of chemicals. Suggested for petrochemicals, degreasers, oils, acids, caustics, alcohols, and solvents	Limited breakthrough protection for acetone (12 min), chloroform (12 min), methylene chloride (6 min), toluene (14 min), and trichloroethylene (11 min)
Pair	8	Gloves, polylaminate (Silver Shield®, Safety 4-H or equivalent)	Recommended for immediate response situations involving morpholine, vinyl chloride, acetone, ethyl ether, solvents, and caustics. Breakthrough time for most chemicals is >6 hr (except for methylamine and ethylamine)	Provides limited protection when in contact with ethyl amine (70%) and methyl amine (40%). (Always use with Neoprene gloves)
Pair	6	Booties, plastic clear, impervious (polyethylene, disposable)	May be used for contamination control, to be worn over protective safety boots. Low concentrations of liquids and vapors, PCBs	Avoid contact with halogenated hydrocarbons and aromatic hydrocarbons
Each	6	Absorbent socks (polyester sock filled with polyethylene absorbent specifically designed for acids, bases, solvents, and other aggressive chemicals)	Rapidly absorbs concentrated acids, bases, and solvents, as well as the following: hydraulic fluids, oils, PCBs, organic solvents (e.g., acetone), and coolants. Especially designed for nitric acid, caustics, sodium hydroxide, and most acids (including hydrochloric and sulfuric)	Formaldehyde solutions not to exceed 37%. Strong oxidizing agents may degrade product over an extended period of time

Appendix E. Emergency Spill Kit Supplies for the Building 883 Container Storage Area (Continued)

Unit	Quantity	Item/Specifications	Capabilities	Limitations
Bag	2	Absorbent, 25 lb (Floor Dry or calcined chemically inert diatomaceous earth)	For use as an all purpose oil, grease, and water absorbent. Essentially dust free	Do not use with hydrofluoric acid or hot alkali solutions
Package	2	Acid neutralizer (magnesium oxide, sodium bicarbonate, Neutrasorb, or Kolor-Safe acid)	Neutralizes many mineral and organic acids including sulfuric, hydrochloric, and nitric	May be used for hydrofluoric acid up to 48%
Package	2	Caustic neutralizer (Spill-x-c, Neutracit, Kolor-Safe base, or equivalent)	For use on many caustics including sodium hydroxide 50% and ammonium hydroxide 29%	Limited use for 29%–50% concentrations of caustics. Not recommended for acids, solvents
Each	1	Drum uprighting tool (drum upender, steel construction equipped with 1.5-in. hook)	Tool to provide leverage to lift drums that have been tipped over to move from horizontal to standing position	No limitations given. (this is a nonsparking tool)
Each	1	Drum repair kit (Lab Safety Supply Series “D” or equivalent)	Fast, temporary repairs for leaking drums. Restrains all common container leaks due to punctures, cracks, or deterioration. Includes items such as hose tape, seals for pinhole punctures, rubber patches, lead wool and epoxy putty for cracks, “T” bolt patches with neoprene pads, plugs, ball plugs, and felt-covered wooden plugs	Designed for temporary restraint and repairs to drums only. Does not provide long-term repair
Each	1	Shovel, plastic, short handle (chemically resistant, nonsparking polypropylene)	Provides for cleanup of absorbent and solids. Resists damage from chemicals and corrosion	Contains no antistatic agent
Each	1	Broom handle for push broom	To be used with broom head for sweeping absorbents	Not applicable
Each	1	Broom head, push (chemically resistant)	Broom has polyethylene head with chemically resistant polypropylene bristles that will not absorb liquids	Avoid contact with halogenated hydrocarbons and aromatic hydrocarbons
Each	2	Broom, shop, rattail (chemically resistant)	Broom has polyethylene head with chemically resistant polypropylene bristles that will not absorb liquids	Avoid contact with halogenated hydrocarbons and aromatic hydrocarbons
Each	2	Dust pan (chemically resistant, polyethylene)	To be used in conjunction with brooms for cleanup of absorbent or solids	Avoid contact with halogenated hydrocarbons and aromatic hydrocarbons

Appendix E. Emergency Spill Kit Supplies for the Building 883 Container Storage Area (Continued)

Unit	Quantity	Item/Specifications	Capabilities	Limitations
E	1	Ratchet, 1/2-in. drive with 15/16-in. socket	Used to remove bolts from rings on ring-top drum	Must be used with standard drum-ring bolts
Each	1	Wrench, bung, non-sparking	Used for tightening and loosening drum fittings.	Must be used on standard drum plugs and fittings.
Roll	1	Tape, caution: "Caution Do Not Enter" (heavy-duty, polyethylene)	Alerts workers and bystanders of hazardous areas or dangerous conditions	Not applicable
Each	6	Bag, poly, 3 ft by 5 ft (heavy-duty 6 mil polyethylene bags)	To contain and dispose of used absorbent materials associated with release cleanup	Avoid contact with halogenated hydrocarbons and aromatic hydrocarbons
Each	1	Marker, paint tip, black	All purpose labeling pen, writes on plastic, glass, ceramic, metal, rubber, leather, film, and wax paper. Permanent, fade proof, smudge proof	Not applicable
Pack	1	Paper, pH (general purpose 0–13)	Provides quick and accurate determination of acids and bases in the field. Range 0–13	Recommended for pH determinations between 0–13. Accuracy ±0.5 pH unit
Box	2	Wipes (Kaydry or equivalent)	Soft cellulose fibers absorb water, solvents, and oils	Combustible
Each	1	Flashlights with batteries	Provides emergency lighting in areas of low visibility	Batteries are checked and replaced as needed on a quarterly basis
Roll	1	2-in. tape (duct or vinyl)	Seals protective clothing	Not applicable

APPENDIX F

Decontamination Agents

Appendix F. Decontamination Agents

Contaminant	Localized Area	Widespread Area
Radioactive materials	1. Brush and detergent* 2. Mild acid solution† 3. Top layer removal†	1. High-pressure steam and water 2. Mild acid solution† 3. Top layer removal†
Metals	1. Brush and detergent* 2. Chelating agent (EDTA disodium salt) 3. Top layer removal	1. High-pressure steam and water 2. Chelating agent (EDTA disodium salt)† 3. Top layer removal†
Oil and grease	1. Brush and detergent* 2. High-pressure steam and water† 3. High-pressure steam with trisodium phosphate†	1. High-pressure steam and water 2. High-pressure steam with trisodium phosphate† 3. Top layer removal†
Solvents and organic compounds	1. Brush and detergent*	1. High-pressure steam and water 2. High-pressure steam with trisodium phosphate†
PCBs	Decontamination using appropriate solvent in accordance with 40 CFR 761.79 a. Any PCB container to be decontaminated shall be decontaminated by flushing the internal surfaces of the container three times with a solvent. The solubility of PCBs in the solvent must be five percent or more by weight. Each rinse shall use a volume of the normal equal to approximately ten (10) percent of the PCB container capacity. The solvent may be reused for decontamination until it contains 5 ppm PCB. The solvent shall then be disposed of as a PCB in accordance with provisions of 761.60(a) 4 and CCR, Title 22 b. Moveable equipment used in storage areas shall be decontaminated by swabbing surfaces that have contacted PCBs with a solvent meeting the criteria of paragraph (a) of this section Note: Precautionary measures should be taken to ensure that the solvent meets safety and health standards as required by applicable Federal regulations	1. High-pressure steam or water 2. High-pressure steam with trisodium phosphate† 3. Remove soil, asphalt, and top layer of cement†

* Detergent to be used must contain trisodium phosphate.

† Only to be used if first procedural step fails to remove contamination.

References:

Unterberg, W., R. W. Melvoid, *et al*. (1989), *Reference Manual of Countermeasures for Hazardous Substance Release*, Hemisphere Publishing.

Esposito, M. P., *et al*. (1987), *Decontamination Techniques for Buildings, Structures and Equipment*, Noyes Data.